EXHIBIT B

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	
Review of the Commission's Program Access Rules and Examination of Programming Tying Arrangements	MB Docket No. 07-198

Wholesale Packaging of Video Programming

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Executive Summary

Federal Communications Commission regulation of the wholesale packaging of video programming services sold to "small" cable television companies would be unwarranted and imprudent. The alleged conduct that is at issue appears to be rare, if it exists at all. Even if the conduct did exist, there is no assurance that eliminating it would make any cable operators, direct satellite broadcasters, and other retail distributors ("MVPDs") or consumers better off. On the other hand, a regulatory intervention has clear costs and risks. The same conclusions apply to regulation of wholesale packages sold to "large" MVPDs. In the United States, markets are allowed to work free from regulation, absent clear evidence of market failure or abuse of market power, neither of which is present in the diverse and competitive market for video programming.

Here, briefly, are the reasons for my conclusions.

1. **Facts.** The most obvious reason not to regulate wholesale packaging of video programming, in the form described by the Commission, is that it apparently occurs in the marketplace rarely, if at all. The program suppliers explain that while they frequently offer packages of networks to both large and small MVPDs, they also negotiate deals for variations on those packages, including the addition and deletion of individual networks with corresponding changes in prices, and stand-alone pricing for their networks. My own empirical investigation, described herein, produced results consistent with this claim. It follows that there is no "'take-it-or-leave-it' tying." (And even if there *were* "'take-it-or-leave-it' tying," or what the formal economic literature calls "pure bundling," economic analysis would not support regulatory intervention.)

2. **Suppliers lack market power.** The industry that supplies video content at wholesale to MVPDs has a competitive structure—it is not concentrated, and the largest supplier has less than 25% of the business. An enormous body of legal and economic policy analysis takes the view that a regulatory intervention aimed at correcting a potential market failure (in this case, the supposition that wholesale packaging is a potentially inefficient marketing practice) is misguided when sellers lack market power. While antitrust analysis certainly is fallible and sometimes controversial, antitrust courts and scholars have far more experience dealing with "tying" and "bundling" than does the Commission. The Commission lacks sound reasons to reject this learning.

3. **The concept of "must have" programming is economic nonsense.** If "must have" programming has any meaning, it means "essential" to the ability to compete. But a "must have" network, as the Commission appears to use that term, is simply a network that makes a cable operator or other MVPD more profitable than otherwise, given its remaining carriage choices and the price it would like to pay for the network. It does not follow that such networks are essential for the survival of an MVPD as a viable competitor. Few, if any, MVPDs are likely to go out of business for lack of a particular network; instead, they will simply adjust other programming choices, prices, and marketing strategy. The econometric results on which the Commission relies do not even address the question of whether some networks are essential.

4. **Retail bundling is not caused by wholesale packaging.** Retail packaging of video content into "tiers" has been the subject of recent policy debate, to which my colleagues and I have made contributions. (See Attachments 1-5.) Although the Commission does not say so in its Notice, its otherwise puzzling concern with wholesale packaging apparently is related to the possibility that wholesale packaging of networks (if it existed in the form the Commission describes, which it apparently does not) might be the cause of *retail* "bundling."[1] If so, the Commission is mistaken. Even if wholesale "'take-it-or-leave-it' tying" took place, it would not preclude MVPDs from unbundling content at the retail level. Even if wholesale packaging were banned, it would not necessarily affect MVPDs' packaging to consumers.

5. **Video economics explains transactions patterns.** Understanding the economics of video distribution requires attention to both customer (whether MVPD or subscriber) demand for content and advertiser demand for viewers. Because of the prospect of advertising revenue, content providers have an incentive to offer lower prices to content customers in return for higher penetration and larger audiences. The prices and contract terms (including carriage commitments) observed in the marketplace necessarily reflect *both* sources of demand. Any given content made available to fewer subscribers will produce less advertising revenue. Faced with a reduction in potential distribution, a

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[1] The term "bundling" often has a special meaning in economics (and antitrust analysis) that is not fully congruent with its use in ordinary conversation. I have tried to use the term "packaging" here to approximate the informal usage, and "bundling" when referring to the economic usage.

competitive supplier of such content, in order to avoid losses, must either increase the price of the content or lower the quality of the content to the cable operator and thus, ultimately, to the consumer. For this reason, program suppliers offer the lowest content prices to MVPDs who agree to make the content available to as many subscribers as possible. The resulting contract necessarily must specify both a price and a carriage commitment. Perhaps observing this natural competitive market outcome creates the false impression that the MVPD is "forced" to carry particular content on particular tiers. But the only compulsion involved is the desire of both parties to make the most economically efficient, and therefore profitable, bargain, in a competitive market where failure to do so could ultimately prove fatal.

6. **Competitive stand-alone prices may exceed competitive package prices.** Because cable networks apparently can already be purchased in the wholesale market both as packages and individually, it is possible that buyers are complaining because they perceive that the sum of the prices at which individual networks are offered compares unfavorably with the prices of various packages. This misperception, while perhaps understandable, betrays a fundamental misunderstanding of the video programming marketplace.

   Program suppliers offer both established content with relatively high demand and newer or less popular content that requires additional penetration in order to succeed in attracting advertising revenue. The stand-alone competitive price for the new or less popular content may well be negative. In other words, the program supplier would be willing to pay the MVPD for higher penetration for certain channels, both because that lowers unit costs per viewer and because it increases advertising revenue. The payment to carry less desirable content may take the form of a price discount on the more popular content if the MVPD agrees to take both. As a result, the competitive price for a package of content may be less than the competitive price for a stand-alone unit of content—whether a popular program or a popular channel—by itself. This can lead to the erroneous conclusion that the supplier is "forcing" the buyer to carry the less popular network.

7. **Regulation of "mixed bundle" packaging is impractical.** "Mixed bundling" refers to offering products both as packages and on a stand-alone basis, and this appears to be the way in which programming is sold to MVPDs. Effective regulation of mixed bundling, even if it were desirable, would require imprac-

tical cost-based rate regulation. Suppose that the Commission sought to achieve an outcome in which every "small" cable operator was presented with a set of "reasonably priced" stand-alone alternatives to packaged video programming options. The Commission could not expect such a regulation to be self-enforcing. Disputes would arise. Predictably, some cable operator would claim that some particular network was "unreasonably" overpriced. The Commission would have to assure itself that any proposed lower package price was compensatory. Neither the traditional tools of utility regulation nor more modern tools such as rate caps offer a practical solution to such disputes.

8. **Bundling can *increase* welfare and diversity.** Even in the extreme case of bundling by a monopolist, obviously absent here, bundling may either increase or decrease economic efficiency and consumer welfare. Whether increase or decrease can be predicted to occur depends on which of many candidate abstract economic models one has in mind and on the validity of specific assumptions in that model. There is no economic model clearly applicable to the special features of wholesale provision of video programming (non-rivalrous services, two-sided markets, multiple temporal and geographic releases, etc.). Even aside from these special features, there are intrinsic economic characteristics of the business that make bundling likely to be efficient: complementarities in production and marketing (e.g., cross-promotion) and savings in transaction and bargaining costs. Similarly imponderable are the potential effects on diversity, however defined. The Commission is not likely through this proceeding or otherwise to uncover empirical evidence sufficient to avoid a very substantial risk that a regulatory intervention will reduce efficiency and welfare.

9. **No "bright lines" delineate program package components.** *All* video products are packages, or packages of packages. This simple fact undermines the conceptual basis of any proposal to regulate packaging or bundling. Regulating the extent of packaging necessarily implies that the Commission can reasonably determine the "legitimate" economic boundaries of the regulated services. But the Commission lacks a foundation for establishing such boundaries, especially for the range of services called video programming.

The most basic component of video programming service is an apparently unitary but highly variable package of services called by such names as episode, segment, special, game or movie. Such a basic unit itself is not well-defined,

made up of varying proportions of other services, such as content, promotion, and embedded advertising. But very few wholesale video programming transactions involve even such relatively basic units. Video programming is instead almost always packaged when it is sold to retail distributors. For example, episodes are packaged into series. Series are bundled into daily, weekly, and seasonal schedules, or "channels." Channels, or networks, are packaged into multichannel groups. There is no economic basis for an assumption that consumers are better off by preserving the opportunity of retailers to purchase individual wholesale "channels" of programming, even if that option appeared to be threatened.

10. **Regulation of packaging threatens other FCC objectives.** Virtually all economists and economic models agree that bundling brings benefits to some customers, even in cases where other customers are worse off. But which ones? While the demand characteristics of the customers who gain or lose from bundling can be described in technical terms, it is seldom possible to identify those customers' other characteristics, such as their economic or social status. Even if the Commission were persuaded that aggregate consumer welfare would increase if bundling were restricted, the Commission would risk violating other policy objectives it favors.

At the retail level, for example, this implies that even if aggregate welfare were increased this would be achieved only by making some unknown group of viewers worse off. Before such a decision could be made, it is important for the Commission to assess the risk that the worse-off consumers may be those whom the Commission wishes to favor (the poor, the elderly, the young, or minority groups, for example.) The Commission lacks information on such effects. Regulatory intervention at the wholesale level presents similar issues. First, the downstream effects on particular consumers are even more difficult to predict. Second, why should the Commission favor one set of "small" cable operators at the expense of other "small" cable operators?

11. **Packages often save time and money for smaller buyers.** Even if program suppliers did offer "take-it-or-leave-it" packages to small cable operators, contrary to the representations of the suppliers and the empirical evidence, that could be an entirely normal and efficient competitive market outcome. In every industry, smaller customers have fewer choices than larger ones, because smaller buyers and sellers alike do not find it worthwhile to bear the

considerable costs of bargaining over the details of complex transactions. Consumers who want to purchase only 11 eggs rather than a dozen do not bargain either with the producer or the retailer about the issue. They either discard (or save) the extra egg or do not buy eggs. Communication lawyers specializing in broadcasting may purchase volume 47 of the Code of Federal Regulations, which combines Parts 70 through 79, even though their interest is limited to Part 73 (broadcast). Bargaining would simply increase enormously the cost (and price) of the transaction, disadvantaging both buyer and seller. Negotiation and related costs tend to be a larger percentage of small transactions than larger ones. In this circumstance, what may appear to be the exercise of market power is nothing but the commonplace phenomenon of small buyers being offered standardized products at list prices, while large customers and their suppliers find it worthwhile to negotiate off-list, non-standard deals. This is not economically inefficient. A regulation requiring individualized negotiation over arbitrarily-defined components of product packages for all customers, regardless of size, likely would reduce welfare.

12. **Unintended side effects are a likely result of regulation.** Unpredictable unintended side effects are a likely result of any regulation of wholesale packaging the Commission might attempt. Viewer welfare is related not only to the quantity of programming, but also to its quality. Attractive programming costs more to produce than less attractive programming. Advertiser demand is related to the size of the audience delivered by the programming. Advertising revenue, given competition, affects viewer welfare because competing programmers exhaust any disequilibrium rents in expenditures on increased program quality. The point of unbundling wholesale video programming, presumably, is to respond to the claim that "small" cable operators would choose networks different from those they now carry, not merely to permit them to carry the same networks at a lower total price. But a change in the program choices of "small" operators will change the size of the audience for each affected network. These changes, even though individually small, can have a magnified effect on program quality.

I. Introduction

A. Background

I am the Gordon Cain Senior Fellow at the Stanford (University) Institute for Economic Policy Research, the Morris M. Doyle Centennial Professor in Public Policy, and by courtesy, Professor of Economics, in the Stanford School of Humanities and Sciences, and Director of the Stanford Graduate and Undergraduate Public Policy Programs. Earlier, I was president of Economists Incorporated, an economic consulting firm that specializes in antitrust and regulatory policy analysis. Prior to that, I was at different times chief economist of, respectively, the Antitrust Division of the U.S. Department of Justice and the White House Office of Telecommunications Policy. My PhD in economics was conferred by Stanford in 1970. I have written extensively about mass media economics and policy, including broadcasting, cable television, and program supply. My most recent book was *The Internet Challenge to Television* (Harvard University Press, 1999).

In a recent Notice of Proposed Rulemaking, the Commission seeks information about the methods used by firms producing programming to sell their programming to MVPDs.[2] In particular, the Commission is concerned about assertions by "small and rural MVPDs as well as program access complainants" that programmers offer their programming as a bundle with no alternative to purchase alternative bundles or to purchase networks individually. The Commission describes the alleged practice as "'take-it-or-leave-it' tying." (NPRM, ¶¶ 129-132). The Commission expresses concern that tying "hinders significantly or prevents MVPDs from providing satellite cable programming to subscribers." (NPRM, ¶ 130)

Fox, NBC Universal ("NBCU") and Viacom MTVN have asked me to provide an economic analysis of these and related issues. My Economists Incorporated colleagues Michael Baumann, John Gale, and Kent Mikkelsen have assisted me in this work.

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[2] *In the Matter of Review of the Commission's Program Access Rules and Examination of Programming Tying Arrangements*, Notice of Proposed Rulemaking, MB Docket No. 07-198, Released Oct. 1, 2007; Adopted Sept. 11, 2007 ("NPRM").

B. Standard of Review for Economic Assessment of Proposed Regulations

U.S. economic policy exhibits a longstanding presumption in favor of competitive market solutions, where feasible. The presumption is not merely ideological, it is pragmatic. Competitive markets create incentives for private actors to change their behavior in response to opportunities to better serve consumers. Such incentives are absent or distorted in many regulated markets. Even when a regulatory intervention is welfare-enhancing in a particular circumstance, circumstances change, but often regulations do not.

As recently as 1996, Congress opted for increased reliance on competition and deregulation in the communications industries, including those at issue in this proceeding. In the years following the Telecommunications Act of 1996, there was a substantial increase in video competition and output, especially from new technologies, such as satellite broadcasting and broadband internet service. This competition continues to grow. Despite this highly competitive marketplace, deregulation has made little progress. Indeed, in this and related proceedings, the Commission proposes to increase the extent of its cable regulation.

Given the presumption in favor of letting competition determine market outcomes and the difficulty of reforming welfare-reducing regulatory policy, proponents of any regulatory intervention seeking to mandate outcomes different from those emerging from competitive markets should carry the burden of demonstrating:

- the existence of a market failure with economic harm to consumers and
- the likelihood that the regulatory intervention will remedy that failure, improving consumer welfare.

A market failure lowers welfare by reducing aggregate output, measured by the value placed on that output by consumers, compared to what is potentially achievable given available resources. While market failures are not uncommon, measuring the extent of their harm often is challenging. Empirical evidence of harm to consumer welfare is key, not only because of the presumption in favor of nonintervention, but because almost any remedy will have costs which must be weighed against the potential benefits of intervention. Experience shows that regulatory failure is at least as common as market failure.

After demonstrating the existence and extent of harm to consumers, it must be shown that the proposed intervention will either benefit some consumers individually and leave no consumers worse off, or benefit consumers as a group. If the latter, it must be further demonstrated that the benefits to those consumers who gain from the in-

tervention outweigh, from a social policy perspective, the losses to those harmed by intervention. Doing so requires that the relevant characteristics of the two groups of consumers can be identified—for example, poor versus non-poor.

None of the costs or benefits of a regulatory intervention, or for that matter the underlying problem to which the intervention is addressed, can be determined with certainty. It is quite common to find in retrospect that a regulatory intervention has unintended and unanticipated consequences, such as changes in the behavior of suppliers as they adapt to new incentive structures. Nevertheless, even regulations that are generally agreed to be harmful to consumer welfare can be very hard to change, as the experience with the 1996 Telecommunications Act demonstrates. The implication of these risks and uncertainties, together with the presumption in favor of competitive market solutions, is that the Commission should exercise considerable caution when considering new constraints on market outcomes.

It is this concern with prudence that has led antitrust prosecutors and courts to adopt the specific screening criteria commonly applied to unilateral vertical restraints, the general category of economic behavior alleged here. The most important screen is the insistence that market power be present before any proposed intervention is considered. A second applicable screen is the idea that harm to competition (i.e., to the process that promotes consumer welfare) is a key requirement for intervention, whereas harm to competitors is not. Specifically, any remedy must not protect inefficient suppliers from efficient suppliers.

II. Facts

The most obvious reason to refrain from federal regulation precluding wholesale packaging of video programming, in the form described by the Commission, is that it rarely, if ever, occurs in the marketplace. The program suppliers explain that while they frequently offer MVPD customers, large and small, choices that include packages of networks, they also negotiate deals for variations on those packages, including the addition and deletion of individual networks with corresponding changes in prices, and offer networks individually outside of any package.

My own empirical investigation, described in this section, produced results consistent with this claim. It follows that there is little or no "'take-it-or-leave-it' tying." But even if there *were* "'take-it-or-leave-it' tying" economic analysis would not support regulatory intervention.

I have reviewed information provided by Fox, NBCU and Viacom describing the way in which each of these programmers reaches agreements with MVPDs on which networks will be purchased and what fees will be paid. My colleagues and I have also interviewed personnel at each of these programmers regarding these practices. Based on this information, it is my understanding that none of these program suppliers offers MVPDs fixed bundles of networks on a "take-it-or-leave-it" basis. All MVPDs are given the opportunity to purchase networks outside of any bundle on a stand-alone basis. In addition, when MVPDs purchase multiple networks, these programmers are willing to—and commonly do— negotiate over how many and which networks will be purchased and which systems will carry which networks.

Clearly, what is happening currently in the wholesale marketplace is not "bundling" in the sense in which that word is used in the economics literature. There is not a fixed bundle of networks that every MVPD purchases from any given program supplier; rather, different MVPDs buy different packages of networks. The Commission's view—though this is not explicit—apparently is that there is a set bundle.

The economic consensus on retail bundling is that the Commission should not require "pure bundles" to be replaced, either by mixed bundles or by pure stand-alone pricing.[3] Applied to wholesale programming, the economic argument would be that the FCC should not intervene in private programming negotiations just to outlaw something programmers apparently don't do. If the Commission simply misapprehends the facts, perhaps the debate should end.

Still, it may be helpful to state as clearly as possible the economic motivation behind the behavior observed in what to all appearances is a competitive wholesale market for video programming. Each individual MVPD is typically offered, by a given multi-network program supplier, one or more network packages at particular prices and a series of stand-alone prices for individual networks. The MVPD is not required to take a package that includes a less desirable network, but the price of the package containing that network may be more attractive—it may even be lower than the price without the less desirable network (reflecting an implicit negative price for the less desirable network). The program supplier offers alternative price incentives designed to

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[3] In the literature, a seller who offers a set bundle of goods, but none of its components, is said to engage in "pure bundling." If the seller offers individual components, but no bundle, it engages in a la carte pricing. If both alternatives are offered, there is said to be "mixed bundling." For further discussion of the economic consensus regarding retail bundling by MVPDs, see Attachment 3.

induce the MVPD to take as much programming as possible and to distribute the programming to as wide a subscriber base as possible.

Viewed in this light, what MVPD complainants may really object to is that the price offered for the "desirable" programming is not available without the "less desirable" programming.

I have analyzed data showing the cable networks carried by individual cable systems to see whether they support the allegation that programmers give MVPDs "take-it-or-leave-it" offers that require them to take all their networks. For my analysis, I have focused on nationally-distributed basic cable networks[4] launched prior to 2004.[5] Non-English language networks owned by programmers also offering English language networks were not included in the study.[6]

Viacom provided data on the carriage of 18 Viacom networks by 205 small[7] U.S. cable systems with fewer than 10,000 subscribers that contract for network carriage directly with Viacom, not through the NCTC.[8] Figure 1 shows the percentage of these

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4 On-demand, premium, pay-per-view, and regional channels are not included.

5 At any given time, cable systems may be under multi-year agreements with programmers. Even if it were true that programmers "coerced" cable systems to carry all their programming, it could take several years after launch before all cable systems entered new agreements that required such carriage. Hence, evidence that systems do not carry a newly-launched network was not considered useful in testing the "coercion" hypothesis. For this reason, networks launched within the last four calendar years were excluded from the analysis.

6 The "coercion" hypothesis was interpreted not to imply that all cable systems, even those with very low Spanish-speaking population, are required to carry Spanish-language programming. Hence, Spanish-language networks were excluded except for Univision. Univision carries only Spanish-language networks and, under the hypothesis, could require that all systems carrying any of their networks carry all their networks. The networks included in the study are listed in Appendix 1.

7 Because of data limitations, the definition of "small cable system" in Figures 1 and 2 differs from that used in the balance of this paper. See n. 10 infra. The 18 networks are listed in Figure 2.

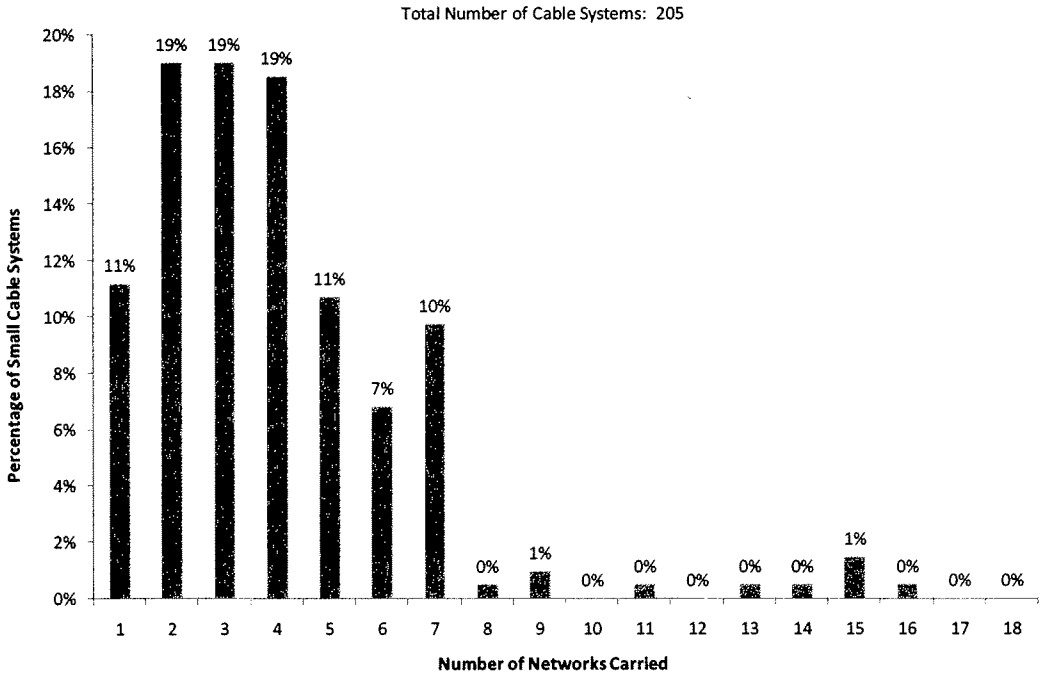
8 NCTC is a buying cooperative made up of small and medium-size cable operators. According to its web site (http://www.cabletvcoop.org/abouts.asp), "NCTC is a not-for-profit, member-operated purchasing organization. ... NCTC negotiates and administers master affiliation agreements with cable television programming networks, cable hardware and equipment manufacturers and other service providers on behalf of our member companies. Through joint purchasing and negotiation, NCTC functions similar to a multi-system operator (MSO), taking advantage of volume discounts offered by programming networks, hardware manufacturers, and other providers. This results in significant cost savings for members on the purchase of these products and services. ... Today,

continued ...

small systems carrying just one of these Viacom networks, two networks, etc. About 10 percent of the systems take only a single Viacom network. More than half the systems take two, three or four networks. None of the systems take all, or even 17 of 18, of the Viacom networks studied. These data show that small systems are not required to take all Viacom networks, and that different systems reach different agreements about the number of Viacom networks they will carry.

Figure 1

Small Cable Systems Do Not Purchase Fixed Bundles of Viacom Networks



Note: Does not include systems outside of the U.S.
Source: Viacom.

Figure 2 shows the percentage of these small systems carrying each of the 18 Viacom networks. *None* of the small systems carried all the networks. Spike was carried on more systems than any other network, but even so 15 percent of the systems did not carry Spike. No other network was carried by as many as 70 percent of the systems. The systems not carrying MTV or VH1 vastly outnumbered those that did carry MTV or VH1. These results agree with Viacom's representations that systems are free to,

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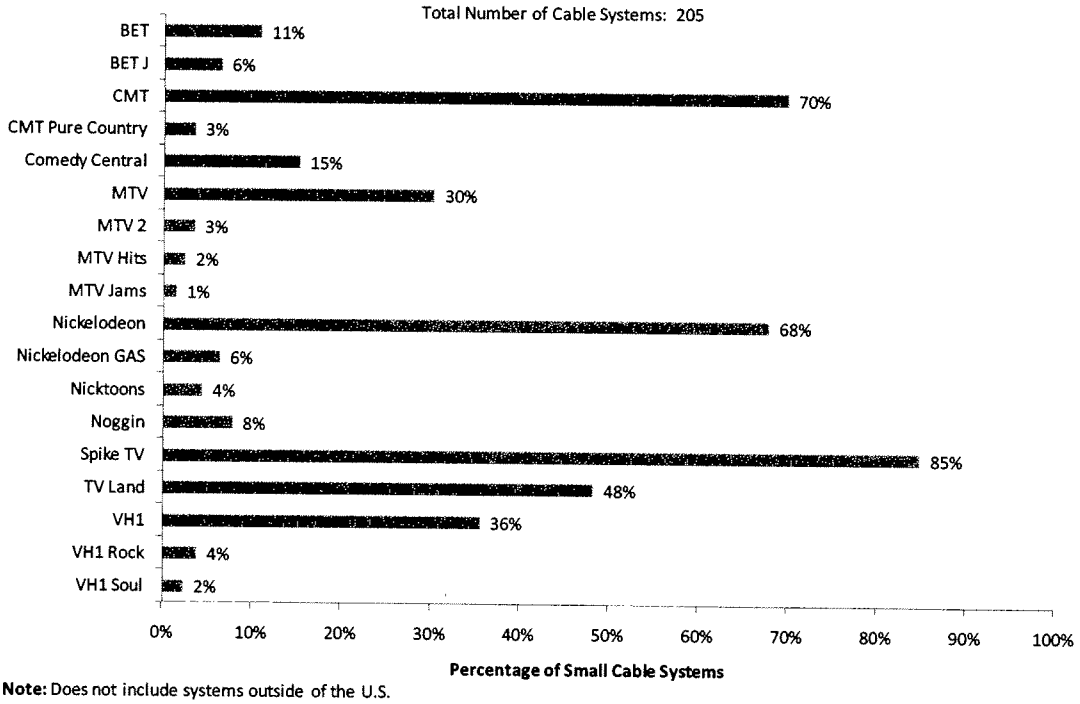
NCTC has more than 1,000 member companies that serve more than 12 million subscribers. ... Our member companies range in size from fewer than 100 subscribers to more than 1 million.

and do, accept or reject individual networks. There is no evidence here of a "take-it-or-leave-it" package.

Figure 2 actually understates the diversity of network packages that systems carry. For instance, the systems carrying four Viacom networks carried 12 different combinations of networks. Less than half of the systems taking four Viacom networks carry the most common combination. See Appendix 2.

Figure 2

Percentage of Small Cable Systems Carrying Various Viacom Networks



Note: Does not include systems outside of the U.S.
Source: Viacom.

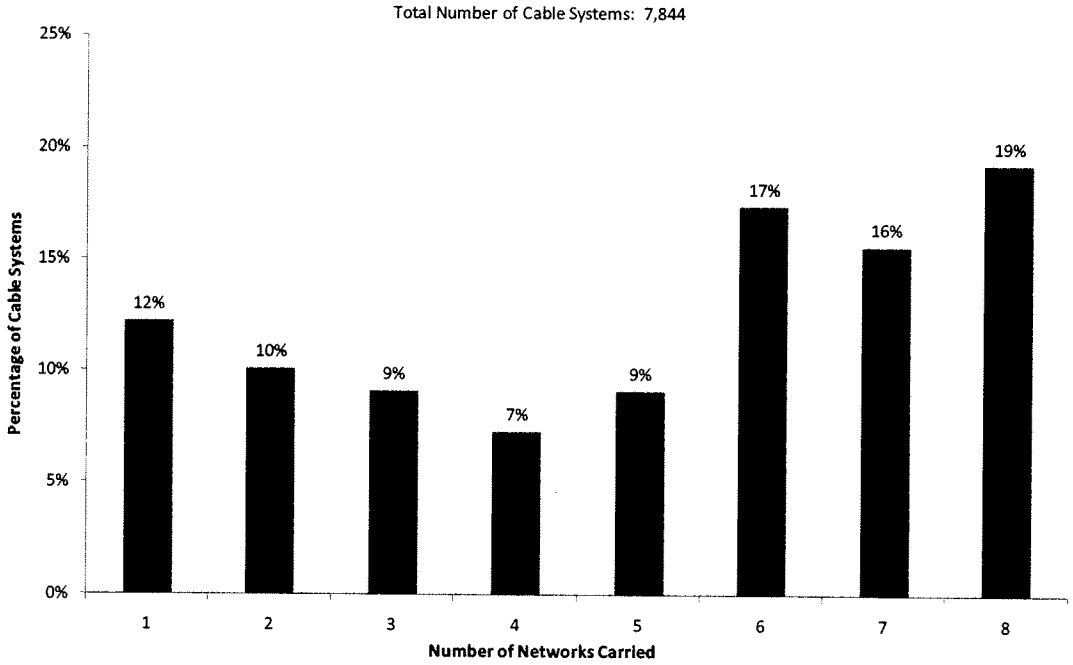
Similarly, Fox supplied data identifying each of the cable systems carrying its networks. I focused on eight nationally distributed networks launched before 2004.[9] See Figure 3. A minority of all cable systems (19 percent) take all eight networks. More than twelve percent take only one network. Clearly, cable systems are not required to

[9] The eight networks studied were Fox College Sports, Fox Movie Channel, Fox News Channel, Fox Soccer Channel, FUEL, FX, National Geographic and Speed Channel.

take, and do not carry, all Fox networks. Different operators reach different agreements about the number of Fox networks they will carry.

Figure 3

Cable Systems Do Not Purchase Fixed Bundles of Fox Networks

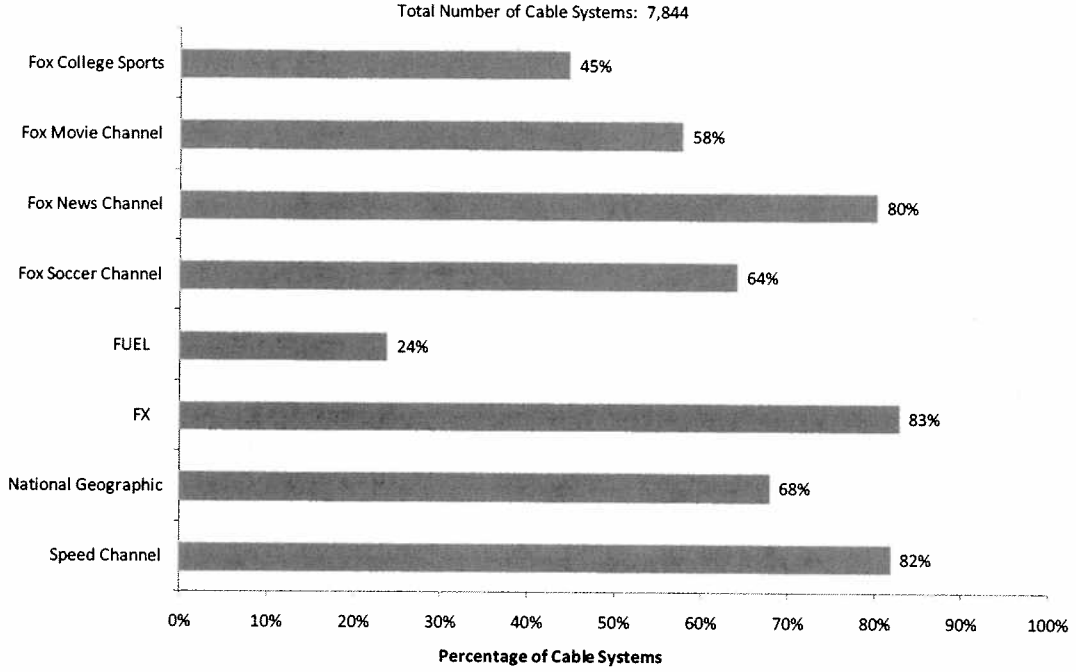


Source: Fox.

Figure 4 shows the percentage of cable systems carrying each of the eight Fox networks. None of the networks is carried by all the systems. FUEL was carried by less than 25 percent of systems. These data are not consistent with the allegation that cable systems are presented with a "take-it-or-leave-it" package for all Fox's nationally distributed programming. The data are consistent with Fox's representation that systems are free to accept or reject individual networks.

Figure 4

Percentage of Cable Systems Carrying Various Fox Networks



Source: Fox.

The NPRM focuses particularly on small MVPDs. For this reason, I repeated the analysis of Fox networks reflected in Figures 3 and 4, restricting the data to include only systems owned by MSOs with fewer than 400,000 subscribers.[10] This restriction eliminated the systems owned by the ten largest MSOs.[11] Among small operators, it is even less common for systems to carry all eight Fox networks. About one in five of these small operators' systems takes only a single Fox network, as shown in Figure 5. Further, systems taking the same number of Fox networks do not necessarily take the

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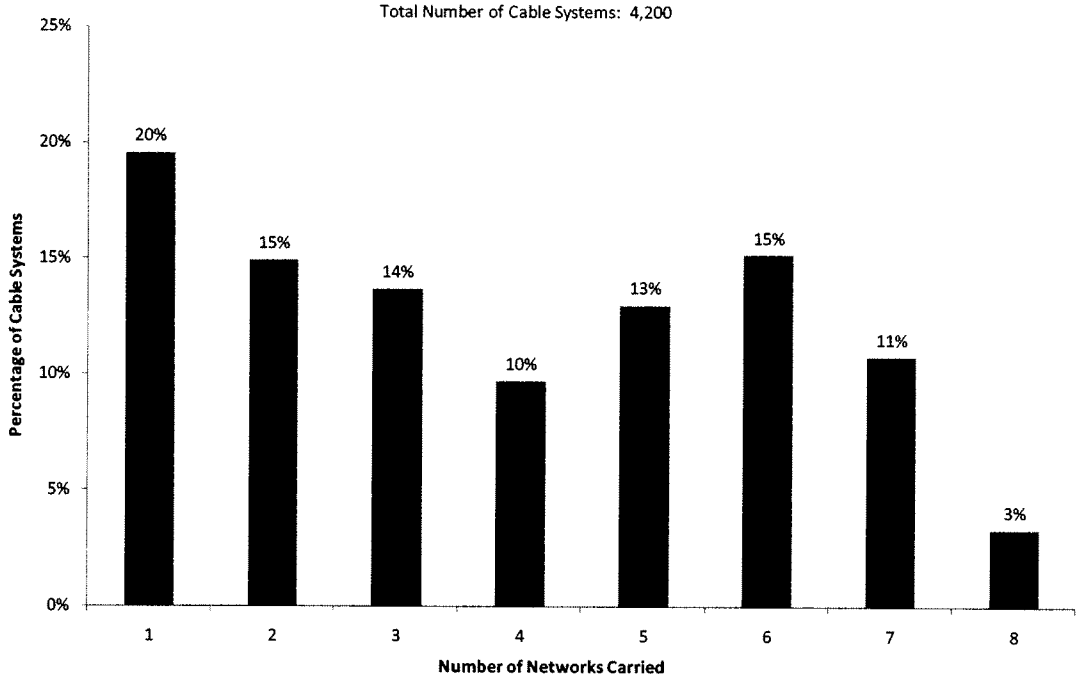
10 The Commission has elsewhere used this definition to delineate small cable systems. See In the Matter of Implementation of Sections of the Cable Television Consumer Protection and Competition Act of 1992: Rate Regulation, MM Docket No. 92-266; MM Docket No. 93-215, Released June 5, 1995; Adopted May 5, 1995, ¶ 3. Except where otherwise indicated, this "FCC definition" is used throughout this paper.

11 The largest 25 MSOs and their total subscriber counts are available from the NCTA (citing Kagan data) at http://www.ncta.com/ContentView.aspx?contentId=73 (visited November 15, 2007). The MSOs eliminated from the analysis in Figures 5 and 6 are Comcast, Time Warner, Cox, Charter, Cablevision, Bright House, Suddenlink, Mediacom, Insight and CableOne.

same networks. For instance, systems taking four Fox networks carried 29 different combinations of networks, and no combination accounted for as many as half the systems. See Appendix 2. Figure 6 shows that none of the Fox networks included in this analysis is carried by all the small operators' cable systems.

Figure 5

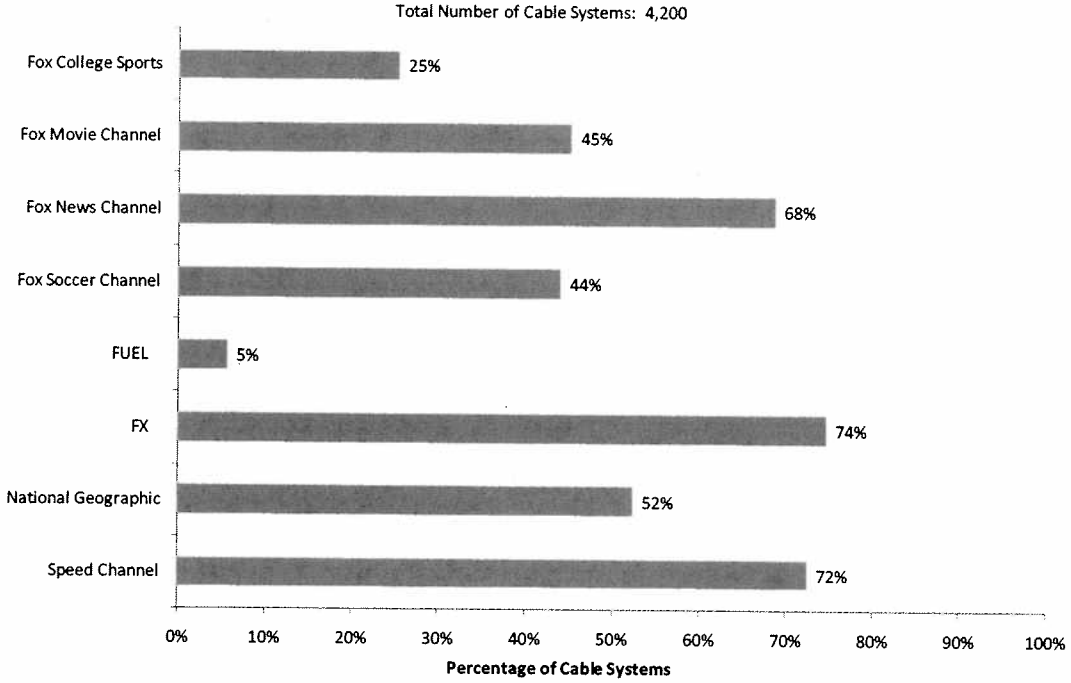
Small Cable Systems Do Not Purchase Fixed Bundles of Fox Networks



Source: Fox.

Figure 6

Percentage of Small Cable Systems Carrying Various Fox Networks



Source: Fox.

NBCU does not maintain data in a form such that *system*-level carriage information could readily be extracted for a large number of systems. Instead, I analyzed data supplied by NBCU showing each cable *operator* (including MSOs) taking any NBCU network on any of its systems and specifying which networks were carried. Data on six NBCU networks were included.[12] Figure 7 shows that more than one in six operators taking any NBCU network takes only a single NBCU network. Only 2 percent of the operators took all six of the networks studied. Figure 8 shows that no network was carried by all the operators, and that one network (CNBC World) was carried by only a small percentage of operators. These data support NBCU's representation that operators negotiate with respect to the networks they wish to carry and are not required to take networks they do not wish to take.

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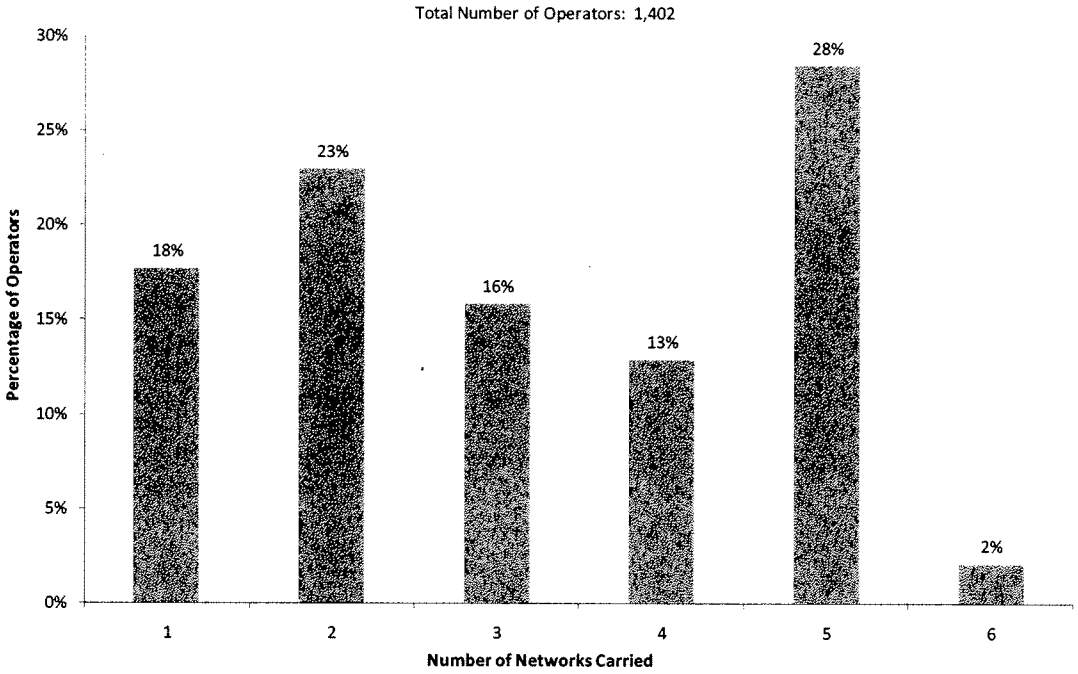
[12] The six networks studied were Bravo, CNBC, CNBC World, MSNBC, Sci Fi Channel and USA.

Figure 7

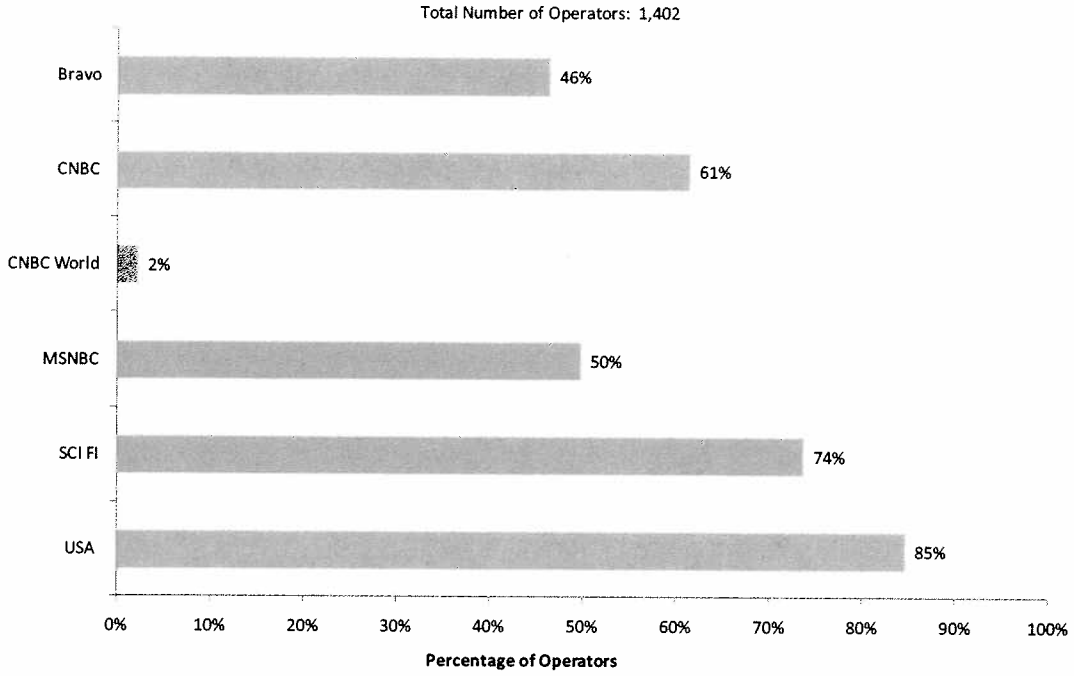
Cable Operators Do Not Purchase Fixed Bundles of NBC Universal Networks



Source: NBC Universal.

Figure 8

Percentage of Operators Carrying Various NBC Universal Networks



Source: NBC Universal.

Again, because the NPRM focuses particularly on small MVPDs, I repeated the analysis of NBCU networks reflected in Figures 7 and 8, restricting the data to include only 271 small cable operators that carry at least one NBCU network but that do not contract for any NBCU networks through NCTC.[13] As shown in Figure 9, it is uncommon for any of these operators to take more than one or two of the six NBCU networks studied. Almost 50 percent take only one network and an additional 35 percent only take two. Figure 10 shows that none of the NBCU networks included in this analysis is carried by all of these operators, with the highest carriage rate being slightly under sixty percent for the USA network. Further, when operators carry multiple NBCU networks they do not all take the same NBCU networks. For instance, among operators taking three NBCU networks there were seven different combinations of networks, and no combination was carried by as many as half the operators. See Appendix 2.

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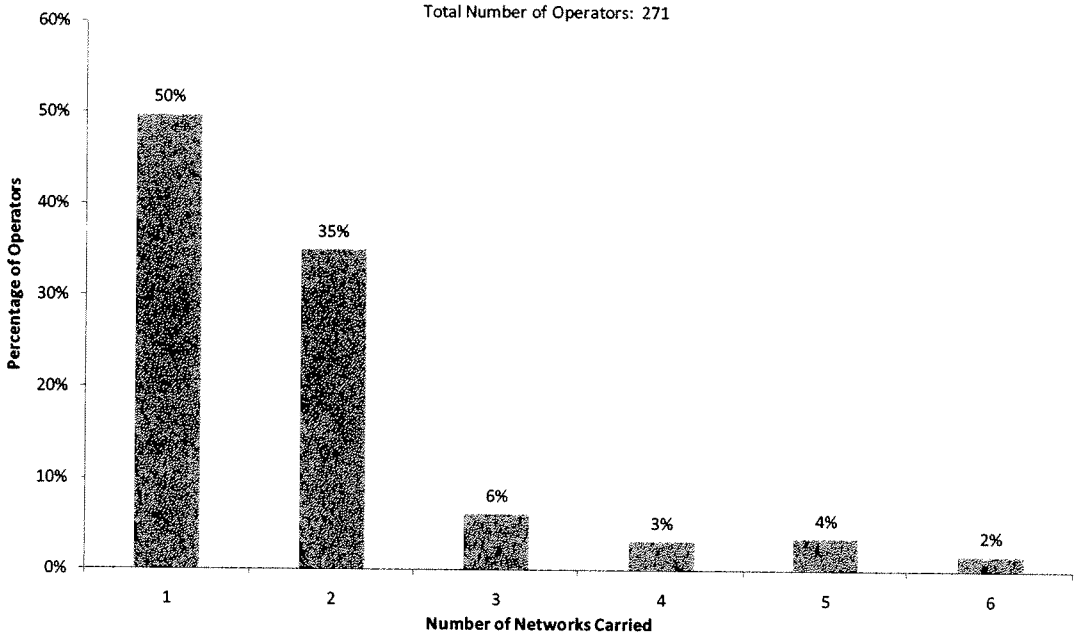
[13] Figures 9-10 use the FCC definition of "small cable system;" see n. 10 supra. The NBCU data in Figures 7-10 are organized by operator.

Figure 9

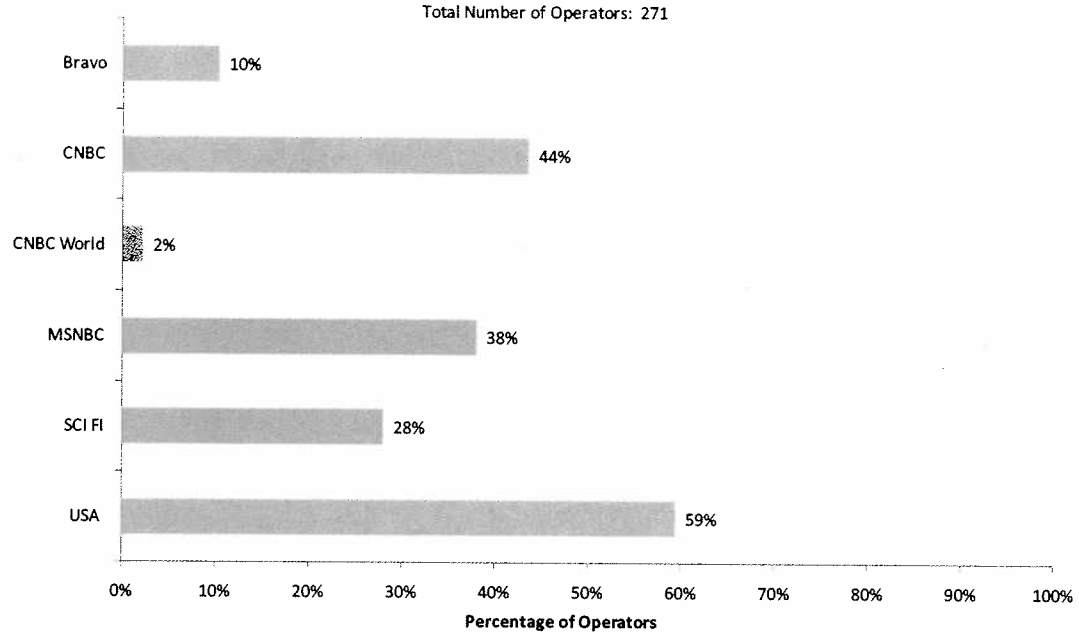
Small Non-NCTC Cable Operators Do Not Purchase Fixed Bundles of NBC Universal Networks



Source: NBC Universal.

Figure 10

Percentage of Small Non-NCTC Operators Carrying Various NBC Universal Networks



Source: NBC Universal.

I had direct access to carriage data only for Fox, NBCU and Viacom. However, Warren Communications maintains data on the networks carried by a large number of cable systems. I performed analyses similar to those described above for 14 different network suppliers.[14] The number of networks included in the study is shown for each supplier in Figure 11. For each programmer, I determined how many of its networks were carried by each cable system. For each programmer, I then analyzed all systems carrying any of the programmer's networks and computed the percentage of those

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[14] Networks included in the analysis are shown in Appendix 1. As explained above, the objective was to include basic networks distributed nationally and launched before 2004. Spanish-language networks offered by programmers also offering English-language networks were excluded. Note that networks in digital suites offered by Viacom and Discovery were excluded because the Warren Publishing data do not reliably show how many networks within these suites were carried by individual systems. Channels appearing in the Warren Publishing data but which no longer exist were excluded. HD networks offering substantially the same programming as standard definition networks were not counted separately.

systems carrying 25 percent or more, half or more, 75 percent or more, and all of that supplier's networks.

Figure 11: Percentage of all cable systems carrying at least one-quarter, half, three-quarters, or all the basic cable networks, by program provider

	Networks included	25% or more	50% or more	75% or more	All
A&E	4	100%	81%	49%	46%
Cablevision	4	100%	66%	51%	28%
Comcast	6	86%	78%	44%	11%
Discovery	9	64%	7%	1%	0%
Disney	11	92%	56%	31%	4%
E.W. Scripps Co.	6	74%	45%	12%	1%
Fox	9	77%	53%	18%	0%
Liberty Media	6	69%	45%	4%	1%
NBC Universal	7	79%	49%	20%	4%
The Media Group	3	100%	32%	23%	23%
Time Warner	9	95%	66%	33%	2%
Trinity Broadcast. Net.	3	100%	1%	0%	0%
Univision	4	100%	16%	1%	0%
Viacom	10	85%	66%	30%	4%

Note: Each line includes only those systems carrying at least one of that supplier's networks.
Sources: Broadcasting & Cable, NCTA, FCC, SNL Kagan, Warren Communications News.

Figure 11 shows that it is relatively uncommon for cable systems to carry all the networks offered by a programmer. The highest percentage of systems taking all the networks from a programmer was for the four channels (A&E, Biography, History, and History International) offered by A&E, a Disney-Hearst-NBC joint venture, where it reached only 46 percent. With the exception of Cablevision's four networks (at 51 percent), no programmer had as much as half of its cable system affiliates carrying as many as 75 percent of its networks. Put another way, half or more of systems carried less than 75 percent of the networks of any given programmer. Figure 11 is striking evidence that programmers do not make "take-it-or-leave-it" offers requiring cable systems to take all or none of their networks.

Figure 11 also shows that programmers sell their networks in many different combinations and on a stand-alone basis. Take as an example Fox, which owns nine networks included in the study. Of sample systems carrying any Fox network, 77 percent carried three or more Fox networks (25 percent of the networks), 53 percent carried half or more of the Fox networks, 18 percent carried seven or more of the Fox networks, and none carried all the Fox networks. A similar pattern holds for the other

programmers. For each of the programmers in Figure 11, some systems carried only one network included in the study.

This pattern understates the diversity of purchased "bundles," because systems that carried the same number of networks from a particular programmer do not necessarily take the same networks. I will use Fox networks to illustrate this point. I examined the systems taking four Fox networks to see what combinations of networks made up the four that were carried. All 12 Fox networks were found in one or more of the 4-network "bundles."

Figure 12 uses the Warren Communications data again, but excludes the operators with 400,000 or more subscribers in order to focus on "small" operators. Figure 12 shows, of the small systems taking any networks from a given supplier, what portion take 25 percent or more of that supplier's networks, etc. Among small operators' systems, it is even more uncommon for a system to carry all of the networks offered by a programmer than for larger cable operators. Aside from A&E (33 percent) and Cablevision (17 percent), no programmer has all its networks carried by as many as 5 percent of small operators' systems.

Figure 12: Percentage of small cable systems carrying at least one-quarter, half, three-quarters, or all the basic cable networks, by program provider

	Networks included	25% or more	50% or more	75% or more	All
A&E	4	100%	73%	36%	33%
Cablevision	4	100%	54%	36%	17%
Comcast	6	77%	68%	26%	4%
Discovery	9	50%	4%	0%	0%
Disney	11	87%	40%	18%	1%
E.W. Scripps Co.	6	65%	34%	5%	0%
Fox	9	68%	41%	10%	0%
Liberty Media	6	55%	27%	0%	0%
NBC Universal	7	70%	30%	4%	0%
The Media Group	3	100%	8%	0%	0%
Time Warner	9	93%	54%	18%	1%
Trinity Broadcast. Net.	3	100%	2%	1%	1%
Univision	4	100%	21%	3%	0%
Viacom	10	78%	51%	13%	0%

Note: Each line includes only those systems carrying at least one of that supplier's networks. Uses FCC definition of small cable system.

Sources: Broadcasting & Cable, NCTA, FCC, SNL Kagan, Warren Communications News.

It might be argued that the only reason that some systems do not take all the networks sold by a programming group is that these systems do not have sufficient channel capacity to accommodate them. To test this argument, I performed the same analysis on systems owned by "small" operators, but restricted the analysis to systems that offer a digital tier and receive at least 60 satellite-delivered networks according to Warren Communications. See Figure 13. Not surprisingly, these high-capacity systems tend to take a larger percentage of programmers' offerings. Even so, there was only one programmer from which over 50 percent of these systems took all the networks. With the exception of two programmers, over two-thirds of these cable systems took less than 75 percent of the networks.

Figure 13: Percentage of small cable systems carrying at least one-quarter, half, three-quarters, or all the basic cable networks, by program provider

Limited to systems with digital capability and at least 60 satellite-delivered channels

	Networks Included	25% or more	50% or more	75% or more	All
A&E	4	100%	100%	90%	86%
Cablevision	4	100%	93%	75%	38%
Comcast	6	99%	98%	48%	8%
Discovery	9	97%	14%	2%	0%
Disney	11	100%	99%	64%	4%
E.W. Scripps Co.	6	91%	64%	12%	1%
Fox	9	98%	80%	23%	0%
Liberty Media	6	96%	64%	0%	0%
NBC Universal	7	99%	83%	16%	1%
The Media Group	3	100%	14%	0%	0%
Time Warner	9	100%	98%	58%	3%
Trinity Broadcast. Net.	3	100%	4%	2%	2%
Univision	4	100%	23%	3%	0%
Viacom	10	98%	95%	45%	1%

Note: Each line includes only those systems carrying at least one of that supplier's networks. Uses FCC definition of small cable system.
Sources: Broadcasting & Cable, NCTA, FCC, SNL Kagan, Warren Communications News.

Small operators' systems with substantial channel capacity likewise show a lot of diversity in their carriage patterns. I conclude that the diversity of carriage patterns among small operators is consistent with the conclusion that wholesalers do not engage in "all or nothing tying."

In summary, the evidence here supports the statements made by Fox, NBCU and Viacom that they do not offer MVPDs bundles of networks on a "take-it-or-leave-it" basis. There is no evidence here that MVPDs are unable to purchase individual networks or a variety of network combinations. I also find that the number and mix of networks that cable systems purchase differ considerably across systems. This is evidence that the other programmers studied do not require MVPDs to purchase a particular combination of networks.

III. Program suppliers lack market power

The industry that supplies programming services at wholesale to MVPDs has a competitive structure. There is consensus within an enormous body of legal and economic policy analysis that a regulatory intervention aimed at correcting a potential market failure (in this case, a potentially inefficient vertical restraint or marketing practice) is misguided when sellers lack market power. While antitrust analysis certainly is fallible and sometimes controversial, antitrust courts and scholars have far more experience dealing with "tying" and "bundling" than does the Commission. The Commission lacks sound reasons to reject this learning. Equally significant, perhaps, is the Commission's use of emotive language to imply the existence of market power where there is none. In a business where market power is absent, customers cannot be "coerced" or "forced" by a supplier to purchase anything, or things in any form. The transactions that do take place are voluntary, not coercive. The basis for this contention is the decades-long academic and judicial examination of the behavior of firms in an antitrust context, where there are more meaningful and relatively objective definitions of "coercive" and like economic behavior.

As I noted above, a necessary (but not sufficient) condition in antitrust analysis for bundling to be regarded as potentially harmful to consumer welfare is that the seller have "market power," usually defined in terms of market share. No supplier of wholesale video programming to MVPDs has as much as 25 percent of that business. There is ample evidence of entry and exit from the business. Even if video programming supplied to MVPDs is not too narrow to be a "market" in the antitrust sense, this business lacks a necessary condition for there to be a likelihood that its marketing practices are harmful to economic efficiency and consumer welfare.[15] Programming is

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[15] Video content not currently purchased by MVPDs, as well as content in other than standard video formats, may belong in the same relevant market as video programming content purchased by
continued ...

sold to MVPDs by a large number of firms, none of which has a large share. Figure 14 summarizes share information for eight programmers.[16] Appendix 3 presents data for individual networks from which Figure 14 is drawn.

Figure 14: Measures of share and concentration in the sale of video programming networks

Programmer	Share of Networks	Share of Subscribers	Share of Full Day Audience	Share of Prime Time Audience	Share of Revenue
Viacom	8.0%	14.0%	20.0%	17.2%	17.9%
Disney	4.7%	10.5%	18.2%	19.2%	23.3%
Discovery	4.7%	7.7%	6.5%	6.8%	5.2%
NBC Universal	4.0%	7.6%	9.8%	11.3%	9.4%
Time Warner	4.0%	7.3%	16.5%	16.2%	14.2%
Fox	4.0%	6.9%	6.5%	7.0%	12.2%
Liberty Media	4.0%	2.3%	1.3%	1.1%	0.4%
The Media Group	3.7%	1.4%	0.0%	0.0%	0.1%
HHI	235	619	1,260	1,223	1,372

Sources: Appendix 3, SNL Kagan.

A simple way to illustrate the relatively small size of competing programming companies is to count the number of networks each sells. Drawing on the Commission's Twelfth Annual report on competition in the delivery of video programming and other sources, I identified 301 basic national programming networks now being carried by MVPDs. Viacom, the programmer with the largest number of networks, has only 24 networks or about 8 percent of the total.

This simple count of networks does not reflect that some networks are larger than others. Three other ways to measure network size are the number of subscribers, the average number of viewers, and network revenues. Shares for each programmer are presented in Figure 14 based on the networks they own. None of these measures indicates that any programmer has as much as 25 percent of programming sales.[17]

MVPDs, because it is possible that MVPDs could and would substitute some such content in the event that video prices increased.

16 I included all currently-available nationally-distributed cable networks for which suitable data were available. The list of networks was not restricted as was the case for Figures 1-13.

17 Note that even the low shares in Figure 14 tend to be overstated. Audience and revenue data were not available for all basic cable networks, particularly among the networks not owned by the programmers in Figure 14. Audience information was available for 43 percent of the basic networks

continued ...

None has a share that is even close to the levels that are commonly associated with market power.

The last row in Figure 14 reports the Herfindahl-Hirshman Index (HHI) associated with each of these measures.[18] HHI is often used as a summary measure of the degree of concentration among sellers. The highest degree of concentration—one single seller—would have an HHI of 10,000. In their Horizontal Merger Guidelines, the U.S. Department of Justice and Federal Trade Commission characterize industries with HHIs below 1,000 as unconcentrated and those with HHIs between 1,000 and 1,800 as moderately concentrated.[19] Using this standard, concentration in video programming networks measured with the number of networks or with subscribers would be considered to be unconcentrated. If measured using revenue or viewers, the sale of video programming networks would be in the middle to low end of the moderately concentrated range. These measures probably exaggerate the degree of concentration because they exclude video content not currently purchased by MVPDs—such as the growing body of broadband video content on platforms such as YouTube and other Internet providers of video. Nevertheless, each of these measures shows an industry structure consistent with a high degree of competition.

Another feature indicating the competitive nature of video programming network sales is the frequency with which new programmers enter and new networks are introduced. Figure 15 shows the number of currently offered networks that were introduced in each year, 2000-2007. A total of 134 new networks were identified as introduced in this period, accounting for 45 percent of the total 301 available networks identified. Of the 134 new networks, 69 were introduced by "unaffiliated" programmers, i.e., programmers with no other networks. (Again, this does not take into account new Internet or other non-traditional sources of video programming.) Figure

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owned by the programmers in Figure 14 but only for 12 percent of the networks outside this group. This means that a disproportionate number of the networks not owned by a programmer in Figure 14 were implicitly counted as zero. Similarly, revenue estimates were available for 80 percent of the networks owned by a programmer in Figure 14 but only 39 percent of the networks outside this group.

[18] HHI is calculated by squaring the share of each firm and then summing the squared shares. For instance, for firms with shares of 40, 30, 20 and 10 percent, respectively, the HHI would be (1,600 + 900 + 400 + 100) = 3,000.

[19] U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines,* (revised April 8, 1997), Section 1.5.

15 demonstrates that there is active entry of new providers into video programming network sales and active expansion of the number and variety of networks offered to MVPDs.

Figure 15: Launches of video programming networks by unaffiliated and other programmers, 2000-2007

Year launched	Unaffiliated programmers	Other programmers	Total
2000	8	2	10
2001	5	10	15
2002	4	13	17
2003	15	8	23
2004	18	12	30
2005	10	15	25
2006	8	3	11
2007	1	2	3
Total Channels Launched	**69**	**65**	**134**

Note: Unaffiliated programmers are those which currently own only one network.
Source: Appendix 3.

The effects of competition on the price of goods or services in a market are widely acknowledged. Outside of a small (and shrinking) number of industries, in the U.S. economy, competition is relied upon to see that customers receive the products, quality, price and terms they desire, consistent with the costs of the firms that supply them. Where competition is present, any firm that might attempt to charge a price that is higher than the quality of its products warrants would find that its customers turn to alternative products supplied by rival firms. Such price increases are not attempted (or soon abandoned) because competition makes them unprofitable.

Competition imposes the same kind of discipline on all aspects of what firms bring to the market. Competition forces firms to provide quality that will attract customers who would otherwise purchase from rivals. Another dimension of competition is the terms on which products are sold. When competition is present, a firm is constrained not to require terms of sale that purchasers do not like, because other firms are free to attract customers by offering terms of sale that are more attractive to purchasers.

The marketplace in which video programmers attempt to sell their programming to MVPDs is highly competitive. Given the intense competition among video programmers seeking carriage from MVPDs—and the obvious self-interest of such programmers in obtaining carriage—there is no apparent reason for the Commission to depart from a market solution in the sale of video programming networks.

IV. The concept of "must have" programming is misleading and inaccurate

In addition to alleged tying of networks in negotiations with MVPDs for carriage, the Commission affirms its belief in "must have" networks. (NPRM, ¶ 38). When discussing the sale of video programming in bundles, the Commission refers only to "desirable or marquee" channels. Nonetheless, the Commission may believe, erroneously, that programmers use "must have" programming to induce MVPDs to carry unwanted programming. This concept is not useful—indeed, it is misleading—in understanding the sale of cable programming.

Effective competition is not like golf, where poor players get handicaps. The Commission's finding that "must have" programming is "essential" for viable competition among MVPDs is based on no appropriate empirical evidence or economic analysis, and it defies common sense. Few if any MVPDs are likely to go out of business as effective competitors for lack of a particular network; instead, they will simply adjust other programming choices, prices, and marketing strategy. Effective competition is a *process* that benefits consumers as firms struggle to gain advantages over one another, not a welfare program to produce equality of outcomes among the competing firms. A "marquee" or "must have" network, as that term appears to be used, is simply a network that makes an MVPD more profitable than otherwise, given its other carriage choices and the price it would like to pay for the network. It is quite unlikely that the second-most-profitable set of carriage and pricing decisions is strikingly less profitable.

Much of the Commission's discussion of "must have" programming centers on whether or not, from the standpoint of a consumer, two networks would be considered close substitutes. One can easily imagine a consumer who prefers to watch only a single channel within a specialized programming niche and may find no other channel to be a satisfactory substitute. However, saying that a subscriber may not have a suitable substitute for a particular network is quite a different matter than saying an MVPD does not have a suitable substitute for a network or that an MVPD cannot compete without a particular network.

Most households watch multiple video programming channels. It seems implausible that the loss of a single channel that is part of a multi-channel line-up would make an MVPD completely undesirable to a large number of consumers. Even if that were the case, the MVPD has an opportunity to add alternative programming in place of the network that was dropped. It does not matter whether or not this alternative programming is a "close substitute" that will attract the same subscribers who were in-

clined to leave. The MVPD is just as well off having new subscribers who are attracted by the alternative programming or by the lower subscription fees that the MVPD is able to offer by eliminating the programming fee to the dropped network.

The Commission's bizarre notion of what might constitute a "must have" network—one that offers "The Sopranos"—would make virtually every differentiated product in the economy a "must have" essential facility:

> We doubt, for example, that fans of one of the most popular cable programs, such as HBO's "The Sopranos," had their competitive MVPD been denied access to the cable-affiliated HBO network, would have regarded the original programming on other premium networks, such as Showtime, an adequate substitute for their favorite show. ...We find that access to this non-substitutable programming is necessary for competition in the video distribution market to remain viable. (NPRM, ¶¶ 38-39)

It is true that "The Sopranos" had some of the highest ratings on cable television—averaging over 8 million viewers, for example, during its 2007 season.[20] The finale of the series, with 11.9 million viewers or roughly 10 percent of the total US television households, got higher ratings than most broadcast network programs that week. However, all that means is that more than 90 percent of the television audience, and over two-thirds of those who subscribe to HBO, did *not* watch "The Sopranos." For the week of April 9, 2007, "The Sopranos" was the highest rated show on cable with 7.42 million viewers. The *second* and *third* most popular shows were episodes of "SpongeBob" on Nickelodeon and "WWE Raw" on USA, with 5.9 million and 5.7 million viewers, respectively. The next three most popular were episodes of "Charm School," "I Love New York – Reunion," both on VH1, and another episode of "WWE Raw," each with about 5 million viewers.[21] Literally hundreds of other shows had ratings too small to measure accurately.

The programming available to an MVPD is best viewed as a continuum running from most effective to least effective in attracting subscribers, per dollar of expenditure by the MVPD at prevailing prices. Each programmer has channels that are currently highly desired and other programming that is less highly desired by MVPDs. This de-

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[20] *Mediaweek*, "The Programming Insider," June 13, 2007, viewed at http://www.mediaweek.com/mw/search/article_display.jsp?vnu_content_id=1003598083.

[21] *Mediaweek*, "The Programming Insider," April 19, 2007, viewed at http://www.mediaweek.com/mw/search/article_display.jsp?vnu_content_id=1003573870.

sirable programming has a place in the continuum, but is substitutable with other programming of similar effectiveness. None of these desirable networks constitutes a separate relevant market (to use an antitrust concept) because MVPDs can substitute other programming of lesser effectiveness in attracting subscribers, adjusting their own prices accordingly, and this serves as a competitive constraint on the price that can be charged for the most desirable programming.

None of the cable networks that might be classified as especially "desirable" has a substantial share of viewing. See Figure 16. No basic cable network is viewed by as much as 2 percent of households with televisions. It is hard to believe that if an MVPD decided not to carry one or more of these "desirable" networks, its subscribers would stampede for the exits.

Figure 16: Prime time ratings of most viewed broadcast and cable networks, 2006-2007

Network Type	Network	HH Rating
Broadcast	CBS	6.90
Broadcast	FOX	5.50
Broadcast	ABC	5.40
Broadcast	NBC	5.10
Broadcast	Univision	1.90
Broadcast	CW	1.80
Cable	Disney	1.79
Cable	USA	1.76
Cable	TNT	1.52
Cable	ESPN	1.39
Cable	Adult Swim	1.29
Cable	Nickelodeon/Nick at Nite	1.24
Cable	TBS	1.12
Cable	Lifetime	1.07
Cable	Fox News	1.03

Source: Appendix 3.

By way of empirical analysis of the issue, the Commission offers an econometric study of the effect of exclusivity in the licensing of regional sports networks to independent MVPDs in two cities. The study has been criticized by others on methodological grounds, but the major drawback of the study is that it does not offer a test of the correct hypothesis. The question examined (whether not having a particular RSN reduces market share) is quite different from the question whether RSNs or any other programming is essential. The issue is whether competitors can *compete*, not whether they can get the same market share. The DBS providers that are the subject of the study did not go out of business.

The Commission's mistaken view of "must have" programming may be coloring its consideration of alleged tying in the sale of programming to MVPDs. The Commission may believe that a programmer with "must have" networks would threaten to deny such networks to MVPDs that do not agree to take other, less desirable, networks. Even if there were a network so unique in attracting subscribers that an MVPD without it would have to charge much lower prices and earn substantially lower profits, the implication simply is that the programmer would be able to command a high price for the network. If such a programmer wanted to require an MVPD to carry less desirable networks as a condition for carrying the unique network, it could do so only by charging a lower price for the unique programming (as a means of offsetting the perceived "negative value" of the additional networks). A programmer trying to induce MVPDs to carry less desirable networks could as easily do so by offering a discount (possibly even a negative effective price) on less desirable networks directly. Tying with a "must have" network would be pointless because there are other ways for programmers to achieve the same ends.

V. The welfare effects of bundling defy generalization

Before exploring the possible connection between wholesale and retail packaging, it is important to understand the economic analysis of product packaging, including bundling, nearly all of which is equally applicable to retail and wholesale packaging of video programming. Because I attach earlier papers describing this analysis as it applies in the retail context (see Attachments 1-5), I offer here only a brief summary of the chief economic principles. These are developed in greater detail in Appendix 4.

Bundling is extremely common, and by no means sinister. As the variety of applicable economic models suggests, bundling occurs for more than one reason. Not all these reasons are fully understood by economists. At a very fundamental level, bundling defines the boundary between what is, and what is not, a commercial product. I develop this idea at greater length below because any rule constraining bundling is, in effect, a rule defending the economic legitimacy of certain product definitions. Unfortunately, once a product is defined by a government decree, rather than by a competitive market outcome, it ceases to have any economic legitimacy—i.e., no longer is it presumptively efficient.

Most products are bundles. An automobile is typically sold as a bundle of components including the chassis, power train, steering, brakes, tires, etc. When retailers purchase a product with components that are *physically* connected together by the manufacturer, one would expect the retailer to sell its customers the same bundle that was

purchased from the manufacturer. However, when there is no physical connection among bundle components, there is no reason in general to expect a relationship between the form in which a retailer purchases products (individually or as a bundle) and how the retailer sells the products (individually or as a bundle).

A common form of bundling is a requirements agreement. A purchaser obtains favorable pricing from a supplier on the condition that the purchaser buy all of some class of products from that supplier. For example, a steel manufacturer may offer a lower price to a customer fabricating filing cabinets on the condition that the customer purchase all its steel from that steel manufacturer. In another form of requirements contract, a restaurant franchisee may agree to buy all of certain inputs from the franchisor. Each of these agreements can promote economic efficiency, and indeed is generally presumed to do so if the seller does not have market power. Even though the buyer purchases products in a bundle, however, the buyer does not necessarily sell bundled products to its customers. The firm fabricating file cabinets need not require that an office supply retailer purchase all its file cabinets from that fabricator. Similarly, a franchise restaurant will not require that its patrons purchase everything on its menu.

Looking downstream from firms that bundle illustrates that upstream bundling does not necessarily cause downstream bundling. A similar lesson can be drawn looking upstream from firms that bundle. There is no reason to suppose that a firm that sells its products as bundles purchased those products, or inputs to those products, in bundles. Returning to the examples cited above, one cannot infer that the steel manufacturer that chooses to offer requirements contracts to its customers purchased its inputs under requirements contracts. A restaurant franchisor requiring that franchisees purchase all of certain products from the franchisor probably obtained those products from multiple sources. In other words, there is no general rule that firms that sell bundles also purchase bundles, much less that such firms sell in bundles *because* they purchase bundles.

Perhaps the least intuitive lesson of the economic analysis of bundling is that it is possible to construct examples in which customers gain more from purchasing a bundle of goods than they would from buying the goods individually. There are many reasons why this may happen, related to the underlying basis for the decision to bundle. One simple reason is that it may be cheaper to produce and market a bundle than the individual components, which implies that the components will cost more, in the aggregate, than the price of the bundle. Given higher prices, customers will demand less. A second reason why this may happen is the effect of heterogeneity in the rela-

tive valuations of individual components by different customers, illustrated in Appendix 4.

Intuition can also lead one astray in another respect. As discussed later in this report, video products are supported both by customers (MVPDs or retail customers) and by advertisers. Any change that reduces audience penetration will reduce advertising revenue. That leads to a negative feedback effect on customer pricing and program quality expenditures, which further reduces advertising demand. To avoid this downward spiral, program suppliers typically offer lower per-subscriber prices from MVPDs willing to commit to carry programming to greater percentages of subscribers. The result may falsely *appear* to be an "all or nothing" bundle. But in fact, the (inaccurate) assumption that programmers engage in wholesale bundling does not imply anything about retail tiers.

The most common economic models of bundling explain bundling as a means for producers to sort out customers according to how much they value a product. These models have common characteristics—economic efficiency may either increase or decrease, and some customers may benefit, even when overall welfare decreases. As this characterization suggests, bundling tends to make some purchasers better off and some purchasers worse off.

Some models with particular assumptions can be used to show that purchasers as a whole are made better off by bundling than they would be with stand-alone pricing. Other models with other assumptions can be used to show the opposite. There is no obviously appropriate model that permits one to characterize the outcome for wholesale or retail video programming. Hence, the welfare effect is indeterminate. It follows that regulatory intervention is little more than a stab in the dark.

Applied to wholesale video programming, the economic learning suggests that pure wholesale bundling (assuming, contrary to the evidence, that it takes place!) makes some MVPDs better off and some worse off than if they were offered stand-alone pricing of the same networks, with no predictable overall effect on welfare. Further, in a market with stand-alone network marketing, the identity of the networks carried by an MVPD will not be the same as with pure bundling. This implies that the Commission's economic regulation will distort programming content. If, as the Commission may believe, all MVPDs that are offered a package of networks on a "take-it-or-leave-it" basis accept the offer, then eliminating such offers could well cause the audience penetration of the average network to be lower, and hence reduce advertising revenue, and either the sum of the stand-alone prices of the current set of networks will

be higher than the corresponding bundle price, or program quality will be less, or both.

How does this affect retail customers? The effect of wholesale unbundling on consumers (again, assuming that bundling now takes place) is that their MVPDs will be offering different items in their tiers, possibly at different (aggregate) prices to reflect different wholesale programming costs and advertising revenues. As discussed in the next section, there is no reason to suppose that the extent of bundling at retail would change. In the end, some consumers would be worse off and others might be better off. To illustrate: Compare a $20 bundle with 10 networks and an $18 bundle with 9 networks. Those consumers who value the 10th network at more than $2 are net worse off; those who value the 10th network at less than $2 are net better off. Appendix 4 describes these possible outcomes in greater detail.

We simply don't have the facts needed to determine whether changes in the mix of networks in tiers will make consumers as a whole better off or worse off. Assuming the MVPD just stops purchasing some networks, which networks would no longer be purchased and included in the MVPD's bundle/tier; how much less would the MVPD pay for the programming; how much would the MVPD's retail price for the bundle/tier be reduced; and how would various consumers value the networks no longer included in the MVPD's bundle/tier? If the MVPD were to add other networks in place of the networks that were dropped when the programmer no longer offered a bundle, this would expand the number of unknowns.

Welfare analysis also requires knowing what types of individuals are harmed or benefited, because marginal changes may not have an equal value to all consumers. For example, if it turned out that relatively well-off people would benefit from an intervention that required stand-alone pricing by programmers, while less well-off families would fare better if their MVPDs purchased under pure bundling, the intervention would harm the poorest Americans. A more complete evaluation would have to take into account the appeal to poorer consumers of any networks that would or would not be carried by MVPDs because of a regulation on wholesale bundling. For all these reasons, the Commission cannot conclude that eliminating pure bundling in wholesale programming, assuming that it exists, would improve consumer welfare.

VI. Retail bundling is not caused by wholesale packaging

Retail packaging of video content into "tiers" has been the subject of much recent policy debate. Although the Commission does not say so, it may be that its otherwise

puzzling concern with wholesale packaging is related to the possibility that wholesale bundling (if it existed in the form the Commission describes) might be the cause of retail bundling. If so, the Commission is mistaken. Not only does "'take-it-or-leave-it' tying" not take place, but even if it did, its elimination would not force MVPDs to unbundle content in any particular way, or at all. Even if wholesale video offerings were bundled, contrary to the evidence, it would not be necessary to eliminate wholesale bundling to permit retail unbundling.

The practice of cable operators' providing programming to subscribers on a bundled basis certainly did not arise as a result of purchasing networks as packages. Cable operators offered bundled service from the very beginning. Cable television got its start as an antenna service.[22] Entrepreneurs erected large antennas in areas where home reception of over-the-air television broadcast signals was poor. The signal from this antenna was then delivered by cable to subscribers. Subscribers had available to them all the broadcast signals—a bundle. Over the course of time, non-broadcast programming emerged that cable operators could offer to their subscribers. Some of these networks were "premium" channels provided to subscribers on a stand-alone basis. Other networks were "basic" and were provided to all subscribers as part of a bundled service.

A look back at the basic cable networks available 25 years ago is instructive. *CableVision*, an industry publication, identified 31 basic satellite video programming services available in 1982.[23] In all but seven cases, each of these networks was owned by a programmer with no other basic network. The remaining seven networks were associated with three different ownership groups, each with two or three networks. Bundling of networks by programmers, if it existed at all, cannot have been a significant feature then. Yet cable operators of that era supplying basic networks to consumers offered them as part of a tier or bundle.

Knowing that MVPDs sell their programming as parts of tiers, programmers offer incentives to MVPDs to influence the MVPDs' decision concerning tier placement. Other

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[22] See Robert W. Crandall and Harold Furchtgott-Roth, *Cable TV: Regulation or Competition* (Washington: The Brookings Institution, 1996), pp. 1-7; and Bruce M. Owen and Steven S. Wildman, *Video Economics* (Cambridge: Harvard University Press, 1992), pp. 211-218.

[23] These networks were identified *in CableVision*, November 22, 1982, p. 350. *CableVision*'s list of basic satellite-fed programming services included Electronic Program Guide (EPG), but EPG was not included in the count of 31 networks.

things being equal, a programmer prefers for MVPDs to place its networks on a tier where a larger number of subscribers can view its networks. Programmers typically obtain a large portion of their revenues from the sale of advertising. Hence, increasing the number of potential viewers and thereby the size of the audience that can be sold to advertisers is valuable to programmers. Based on interviews with Fox, NBCU and Viacom officials, I understand it to be common for programmers to offer reduced per-subscriber fees when the MVPD agrees to make a network available to a larger number of subscribers, such as by carrying a network on a tier that has more subscribers than an alternative tier.

It would be undesirable to write a contract between a program supplier and an MVPD that specified just the price but provided no assurance regarding the number of subscribers that would view the programming. If the Commission sought to prevent program suppliers and MVPDs from reaching agreements under which programming is carried to specific numbers or percentages of subscribers, the result would be to reduce programmers' advertising revenues and therefore either to increase the per-subscriber prices paid by MVPDs for content, or to reduce program quality, or both. Cable operators, like programmers, derive revenue both from content fees and from advertising, and the effects of regulation are harder to predict for "two-sided" services.[24]

The mere existence of a single contract between a given buyer and seller covering multiple products obviously is not evidence of bundling. Imagine that the price and carriage commitment with respect to each product were separately negotiated. It would be sensible to then write a single contract, because the vast majority of the other terms would be identical. This contract might well specify a single price (or price per subscriber) covering all the networks being carried, because that could facilitate agreement even when the parties disagreed about the individual product prices.

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[24] A two-sided service or market is one in which there are two kinds of customers, and demand by one type of customer is greater, the more demand there is of the other type. This is a generalization of the more familiar "network effects" phenomenon. The value of a network to a given user is greater, the greater the number of other users. In video programming, the demand by advertisers is higher, the greater the number of viewers. The demand by viewers is greater, the higher the quality of programming. The two demands are linked through expenditures on program quality, which are driven higher by competition for audiences among program suppliers.

Finally, and assuming *arguendo* that wholesale bundling existed, mandatory wholesale unbundling is unnecessary to permit retail unbundling. Suppliers care about penetration for the reasons discussed above, related to advertising revenue, and operators care because the lower the percentage of subscribers reached, the higher the price they can expect to pay per subscriber for the content, to offset the supplier's lost advertising revenue. Given the business considerations that lie behind currently negotiated network fees, suppliers would not be indifferent if operators proposed to pay network fees previously negotiated but provide a la carte audiences much smaller than the programmers anticipated. If one assumes that operators wanted to offer programming on an a la carte basis and that programmers and operators were to reach agreement on fees that reflect a la carte retail distribution, there is no reason why a supplier could not sell its networks as a package. For instance, the supplier could "require" that an operator offer all of the supplier's networks rather than just a few.

VII. Competitive stand-alone prices exceed competitive package prices

Given the presence already of what the economic literature calls "mixed bundling" (both packages and individual network sales) in the wholesale market, one potential source of buyer complaints is a perception on their parts that the sum of the prices at which they are offered individual networks compares unfavorably with the prices of various packages on offer. This perception, while understandable, betrays a fundamental misunderstanding of the video programming marketplace.

Program suppliers offer both established content with relatively high demand and newer or less popular content that requires additional penetration in order to succeed. The stand-alone competitive price for the new or less popular content may well be negative. In other words, the program supplier would be willing to pay the MVPD for higher penetration for certain channels, both because that lowers unit costs per viewer and because it increases advertising revenue. The payment to carry less desirable content may take the form of a price discount on the more popular content if the MVPD agrees to take both. As a result, the competitive price for a package of content may be less than the competitive price for a stand-alone unit of content—whether a popular program or a popular channel—by itself. This can lead to the erroneous conclusion that the supplier is "forcing" the buyer to carry the less popular network.

VIII. Regulation of "mixed bundle" packaging is impractical

Based on the evidence I have reviewed, Fox, NBCU and Viacom do not offer their networks in "take-it-or-leave-it" bundles. MVPDs are presented with alternative bundles and stand-alone prices for individual networks, and MVPDs can propose their own bundles.

If this is true for programmers generally—something I am not now in a position to confirm—then one wonders what it is that some small cable operators seemingly are complaining about. It is possible that the real complaint of these small operators is as follows: even though networks are offered individually and in various packages, one bundle is so much more desirable than the others that a rational MVPD effectively has only one reasonable choice. In other words, the competitive market prices of stand-alone networks and alternative bundles are so high that they do not provide any practical alternative to the bundle that the MVPD purchases.

If that is their complaint, my first response is that, generally speaking, in any business the price for a product bundle will be less than the sum of the stand-alone prices for the elements of the bundle, as explained above. Second, the behavior of other MVPDs strongly indicates that the prices of stand-alone networks and alternative bundles are not too high to be a realistic alternative. The evidence I have reviewed shows that many small operators purchase their networks using stand-alone prices.

The evidence presented in Section II demonstrates that different cable operators take different bundles of networks from the same program supplier. Among small operators, none takes all of Viacom's programming and 11 percent take only one network. Among small operators taking NBCU programming outside of NCTC, half carried only one NBCU network, 85 percent carried one or two NBCU networks, and only 2 percent carried all six NBCU networks studied. Similar patterns hold for Fox and other programmers as well. See Figures 1-13. Apparently, there are many combinations of networks that various small operators find attractive.

If the Commission were to take seriously a complaint that stand-alone prices to MVPDs are too high to provide a real alternative, the Commission would be required to determine when rates are "too high" for every cable network at issue, including any change in pricing with regard to such variables as transmission quality, channel placement, minimum subscriber guarantees, and the like. Suppose that the Commission sought to achieve an outcome in which every "small" cable operator was presented with a set of "reasonably priced" a la carte alternatives to packaged video pro-

gramming options. The Commission could not expect such a regulation to be self-enforcing. Disputes would arise. Predictably, some operators would claim that some particular network was "unreasonably" overpriced. The Commission would have to assure itself that any proposed lower package price was compensatory and that the stand-alone prices represented realistic alternatives on a case-by-case basis, taking into account the many variables involved in any carriage negotiation between a programmer and an MVPD. Neither the traditional tools of utility regulation nor more modern tools such as rate caps offers a practical solution to such disputes.

A particular problem in establishing "reasonable" stand-alone network prices would be the difficulty of determining cost. Video programming is largely non-rivalrous. Put differently, virtually all production and many distribution costs are joint and common with respect to individual customers. The Commission would have to develop a set of rules for the allocation of common costs to particular customers. Economically sound rules would result in different prices for each network to each customer, related to that customer's elasticity of demand for each network. Pricing would also have to take into account the feedback effect of distribution on advertising revenues. Clearly, this would be an unworkable regulatory scheme.

IX. There are no "bright lines" separating video package components

All video products are packages, or packages of packages. This simple fact undermines the conceptual basis of any proposal to regulate packaging or bundling. Regulating the extent of packaging necessarily implies that the Commission can reasonably determine the "legitimate" economic boundaries of the regulated services. But the Commission lacks a foundation for establishing such boundaries, especially for the range of services called video programming.

The most basic component of video programming service is an apparently unitary but highly variable bundle of services called by such names as episode, segment, special, game or movie. Such a basic unit itself is not well-defined, made up of varying proportions of other services, such as content, promotion, and embedded advertising. But very few wholesale video programming transactions involve even such relatively basic units. Video programming is instead almost always packaged when it is sold to retail distributors. For example, episodes are bundled into series. Series are bundled

into daily, weekly, and seasonal schedules, or channels. Channels, or networks, are packaged into multichannel groups.[25]

Further, each basic unit of programming, if one can be said to exist, is also a bundle of services available through time and space. The dimensions of time and space are manifested in the concepts of distribution windows, releases, and runs, and of distribution territories. The shapes and boundaries of all these bundles are fluid. They vary in response to the economics of production and distribution, the circumstances of changing supply and demand. Economies of scope and scale in production and marketing, for example, promote bundling of episodes into series or encourage continuing daily programs, such as newscasts.

It is reasonable for a buyer to prefer to negotiate a single price for a package of video programming, rather than to negotiate for individual units at a lower degree of aggregation, for several reasons, not least being the savings in negotiation costs. For example, potential savings in transaction and search costs, as well as risk management, encourage some buyers to favor package purchases over episode-by-episode purchases. As economic circumstances, market prices, and technologies change, the boundaries of efficient packages also change. For example, television advertisers once purchased sponsorships of particular program series. That is unusual today. Advertisers found that it was less risky to purchase exposure on a portfolio of programs, and suppliers accommodated this demand. In other mass media—newspapers, for example—products corresponding to multichannel bundles without stand-alone or a la carte options are common. One could think of newspaper sections as the World News channel, the Local News channel, the Business channel, the Style channel and the Sports channel. The point is not that one such characterization is correct; instead, defining the product in any particular way is arbitrary.

Similarly, to the extent the Commission seeks, through the present proposal, to constrain retail bundling of programming in the hope of allowing subscribers to avoid

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[25] Indeed, of all the bundles in which programming is commonly sold, the one least infused with "market outcome" economic legitimacy is the channel or network. This familiar concept is a construct, not of markets, but of engineering assumptions made in the 1920s and frozen ever since in federal spectrum allocation decisions. Given the artificial origins of the single-frequency-through-time "unit" of service, there is no economic basis for an assumption that economic welfare is well-served by preserving the opportunity of retailers to purchase wholesale units of programming in this particular configuration, even if that option appeared to be threatened.

exposure to undesired programming, the dividing line between "networks" is not a useful focus. It is surely true already that most, perhaps all, individual networks contain *some* material that is disliked by *some* subscribers. If retail unbundling results in lower penetration rates for many channels, as seems likely, programmers will continue to seek out the largest potential audiences available to them. Programming decisions and patterns likely will change on all networks. It is entirely possible that the amount of "unwanted" programming on the surviving networks will increase, relative to their present offerings.

X. Regulation of packaging threatens other FCC objectives

Virtually all economists and economic models agree that bundling brings benefits to some customers, even in cases where other customers are worse off. But which ones? While the demand characteristics of the customers who gain or lose from bundling can be described in technical terms, it is seldom possible to identify those customers' other characteristics, such as their economic or social status. Even if the Commission were persuaded that aggregate consumer welfare would increase if bundling were restricted, the Commission would risk violating other policy objectives it favors.

At the retail level, for example, even if aggregate welfare were increased by mixed bundling, this would be achieved only by making some unknown group of viewers worse off. Before such a decision could be made, it is important for the Commission to assess the risk that the worse-off consumers may be those whom the Commission wishes to favor (the poor, the elderly, the young, or minority groups, for example). The Commission lacks information on such effects. Regulatory intervention at the wholesale level presents similar issues. First, the downstream effects on particular consumers are even more difficult to predict. Second, why should the Commission favor one set of "small" cable operators at the expense of other "small" cable operators?

XI. Packages often save time and money for small buyers

Even if program suppliers did offer "take-it-or-leave-it" packages to small cable operators, contrary to the representations of the suppliers, that could be an entirely normal and efficient competitive market outcome. In every industry, smaller customers have fewer choices than larger ones, because smaller buyers and sellers alike do not find it worthwhile to bear the considerable costs of bargaining over the details of complex transactions. To do so would simply increase the cost (and price) of the transaction, disadvantaging both buyer and seller. Negotiation and related costs tend

to be a larger percentage of small transactions than larger ones. In this circumstance, what may appear to be the exercise of market power is nothing but the commonplace phenomenon of small buyers being offered standardized products at list prices, while large customers and their suppliers find it worthwhile to negotiate off-list, non-standard deals. This is not economically inefficient, and it is almost certainly the way in which small operators purchase most of the inputs used in their businesses—from service vehicles to converter boxes to outside plant components. A regulation requiring individualized negotiation over arbitrarily-defined components of standard product bundles for all customers, regardless of size, likely would reduce welfare.

XII. Unintended side effects are a likely result of regulation

Unpredictable unintended side effects are a likely result of any packaging regulation the Commission might attempt. Viewer welfare is related not only to the quantity of programming, but also to its quality. Attractive programming costs more to produce than less attractive programming. Advertiser welfare is related to the size of the audience delivered by the programming. Advertising revenue, given competition, affects viewer welfare because competing programmers exhaust any disequilibrium rents in expenditures on increased program quality. The point of unbundling wholesale video programming, presumably, is to respond to the claim that "small" cable operators would be able to choose networks different from those they now carry, not merely to permit them to carry the same networks at a lower total price. But a change in the program choices of "small" operators will change the size of the audience for each affected network.

These changes, even though individually small, can have a magnified effect on program quality and quantity. In advertising markets even small differences in the sizes of audiences delivered by networks competing for similar audience segments can translate into large differences in advertising revenues. Large differences in advertising revenues imply large changes in program quality, a positive feedback, and changes in subscriber prices, where applicable. In the end, a regulation aimed at making (some) "small" cable operators better off at the expense of program suppliers is likely to have important and unpredictable positive and negative consequences for viewers everywhere. There is no basis to assume that these consequences, individually both positive and negative, add up to a net improvement in welfare, even if we weight every viewer equally. The point is not that the Commission should be required to understand and defend all the general equilibrium effects of its regulatory interventions. However, while it often is reasonable to assume that such effects are negligible, such effects are not *always* negligible, especially when, as here, there are reasons

to expect strong interactions with the interests of other consumers of services produced with common costs, and sold in complex two-sided markets.

Video programming provided to MVPDs frequently is also released in other distribution "windows." For instance, programming for a cable series may subsequently be released on DVD for home entertainment use. Changes in programming quality will have effects on viewing and the demand for programs beyond what is provided to subscribers by MVPDs. Cable programmers also purchase inputs—e.g., television rights to movies, sporting events. Decreases in cable programming expenses could mean lower payments to such input suppliers.

Appendix 1: Networks Used for Carriage Analyses

Networks Used for Warren Carriage Analysis (Figs. 11, 12, 13)	Owner
A&E (Arts & Entertainment)	A&E
Biography Channel, The	A&E
History Channel	A&E
History International (aka History Channel International)	A&E
American Movie Classics (AMC)	Cablevision
fuse	Cablevision
Independent Film Channel (IFC), The	Cablevision
WE: Women's Entertainment	Cablevision
AZN Television (formerly International Channel Networks)	Comcast
E! Entertainment Television	Comcast
G4 VideogameTV (formerly G4 tech TV)	Comcast
Golf Channel, The	Comcast
Style Network, The	Comcast
Versus (formerly Outdoor Life Network - OLN)	Comcast
Animal Planet	Discovery
Discovery Channel	Discovery
Discovery HD Theatre	Discovery
Discovery Health Channel	Discovery
Discovery Kids Channel	Discovery
Discovery Times Channel	Discovery
FiT TV	Discovery
Learning Channel (TLC), The	Discovery
Military Channel	Discovery
ABC Family	Disney
Disney Channel	Disney
ESPN	Disney
ESPN Classic	Disney
ESPN2	Disney
ESPNEWS	Disney
Lifetime Movie Network	Disney
Lifetime Real Women	Disney
Lifetime Television	Disney
SOAPnet	Disney
Toon Disney	Disney
DIY (Do-It-Yourself Network)	E.W. Scripps Co.
Fine Living	E.W. Scripps Co.
Food Network	E.W. Scripps Co.
Great American Country (GAC)	E.W. Scripps Co.
Home & Garden Television (HGTV)	E.W. Scripps Co.
Shop At Home Network	E.W. Scripps Co.

Networks Used for Warren Carriage Analysis (Figs. 11, 12, 13)	Owner
Fox College Sports	Fox
FOX Movie Channel	Fox
FOX News Channel	Fox
Fox Soccer Channel (formerly Fox Sports World)	Fox
FSN (Fox Sports Net)	Fox
FUEL TV	Fox
FX	Fox
National Geographic Channel	Fox
SPEED Channel	Fox
America's Store	Liberty Media
Encore	Liberty Media
Game Show Network (GSN)	Liberty Media
Home Shopping Network (HSN)	Liberty Media
MoviePlex	Liberty Media
QVC	Liberty Media
Bravo	NBC Universal
CNBC	NBC Universal
CNBC World	NBC Universal
MSNBC	NBC Universal
Sci Fi Channel	NBC Universal
Sundance Channel	NBC Universal
USA Network	NBC Universal
Beauty & Fashion Channel	The Media Group
Healthy Living Channel	The Media Group
Men's Channel	The Media Group
Boomerang	Time Warner
Cartoon Network	Time Warner
CNN (Cable News Network)	Time Warner
CNN Headline News	Time Warner
CNN International	Time Warner
Court TV	Time Warner
TBS Superstation	Time Warner
TNT (Turner Network Television)	Time Warner
Turner Classic Movies (TCM)	Time Warner
Church Channel, The	Trinity Broadcasting Network
JCTV	Trinity Broadcasting Network
TBN - Trinity Broadcasting Network	Trinity Broadcasting Network
Bandamax	Univision
Galavisión	Univision
Telefutura	Univision
Univision	Univision

Networks Used for Warren Carriage Analysis (Figs. 11, 12, 13)	Owner
BET (Black Entertainment Television)	Viacom
BET J	Viacom
Comedy Central	Viacom
Country Music Television (CMT)	Viacom
MTV	Viacom
MTV 2	Viacom
Nickelodeon/Nick at Nite	Viacom
Spike TV	Viacom
TV Land	Viacom
VH1	Viacom

Sources: FCC, Twelfth Annual Report (released March 3, 2006); SNL Kagan, Economics of Basic Cable Networks, 2007 Edition; National Cable and Telecommunications Association (NCTA), http://www.ncta.com; Broadcasting & Cable, "Guide to Hispanic TV Networks," (Oct. 2007) http://www.broadcastingcable.com; Warren Communications News, Television & Cable Factbook, 2007 Edition; Fox; NBC Universal; Viacom.

Networks (18) used for Viacom analysis (Figs. 1, 2)
BET
BET J
CMT
CMT Pure Country
Comedy Central
MTV
MTV 2
MTV Hits
MTV Jams
Nickelodeon/Nick at Nite
Nickelodeon GAS
Nicktoons
Noggin
Spike TV
TV Land
VH1
VH1 Rock
VH1 Soul

Networks (8) used for Fox analysis (Figs. 3, 4, 5,6)
Fox College Sports
Fox Movie Channel
Fox News Channel
Fox Soccer Channel
FUEL
FX
National Geographic
Speed Channel

Networks (6) used for NBCU analysis (Figs. 7, 8, 9, 10)
Bravo
CNBC
CNBC World*
MSNBC
Sci Fi Channel
USA Network

*CNBC World not used in "NCTC only" analysis

Appendix 2: Network Packages Carried by Small Systems and Operators Are Diverse

Viacom

Networks carried	Systems	Unique network packages	Systems carrying most common package
1	23	5	11
2	39	11	14
3	39	7	15
4	38	12	16
5	22	10	7
6	14	7	7
7	20	5	15
8	1	1	1
9	2	2	1
11	1	1	1
13	1	1	1
14	1	1	1
15	3	3	1
16	1	1	1
Total	205	67	

Source: Viacom. **Note:** Includes small systems contracting directly with Viacom.

Fox

Networks carried	Systems	Unique network packages	Systems carrying most common package
1	821	6	312
2	626	16	176
3	574	23	250
4	407	29	144
5	545	19	182
6	636	13	307
7	451	6	398
8	140	1	140
Total	4200	113	

Source: Fox. **Note:** Includes small systems.

NBC Universal

Networks carried	Operators	Unique network packages	Operators carrying most common package
1	135	5	85
2	95	6	54
3	17	7	7
4	9	5	5
5	10	1	10
6	5	1	5
Total	271	25	

Source: NBC Universal. **Note:** Includes small, non-NCTC operators.

Appendix 3: Nationally Distributed Basic Cable Networks

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
29HD Network	2005	29 HD Network		
A&E (Arts & Entertainment)	1984	A&E	0.59	0.95
ABC Family	1977	Disney	0.45	0.73
Africa Channel, The	2005	Africa Channel, The		
American Movie Classics (AMC)	1984	Cablevision	0.4	0.71
AmericanLife TV (formerly Goodlife Television Network)	1985	Concept Communications		
America's Preview	2004	The Media Group		
America's Store	1986	Liberty Media		
Angel One		Dominion Video Satellite		
Angel Two		Dominion Video Satellite		
Animal Planet	1996	Discovery Holding Co.	0.22	0.39
Anime Network	2002	ADV Films		
Antena 3 International	1996	Antena 3 International		
Auction Network		Auction Network		
AYM Sports	2003	Digital Films		
AZN Television (formerly International Channel Networks)	1990	Comcast		
Azteca America	2004	TV Azteca		
BabyFirstTV	2006	Bellco-Regency		
Bandamax	2003	Univision		
BBC America	1998	BBC Worldwide	0.04	0.06
BBC World News	2006	BBC Worldwide		
Beauty & Fashion Channel	2001	The Media Group		
BET (Black Entertainment Television)	1980	Viacom	0.29	0.47
BET Gospel	2002	Viacom		
BET J	1996	Viacom		
Big Ten Network	2007	Big Ten Network		
Biography Channel, The	1998	A&E	0.07	0.1

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
Black Family Channel	1999	Programming Acquisitions LLC		
Blackbelt TV	2004	Threshold TV Inc.		
Bloomberg Television	1995	Bloomberg Media		
BlueHighways TV	2005	Network Creative Group LLC		
B-Mania	2000	B-Mania		
Boomerang	2000	Time Warner		
Bravo	1980	NBC Universal	0.22	0.42
Bridges TV	2004	Bridges TV		
BYU Television	2000	Church of Jesus Christ of Latter-Day Saints		
Canal 24 Horas	1999	Radio Television Española Internacional		
Canal 52 MX	2005	MVS Television		
Canal Sur	1991	SUR Corp.		
Caracol TV	2003	Caracol Television International Inc.		
Career Entertainment Television	2004	Career Entertainment Television		
Cartoon Network	1992	Time Warner	0.81	0.98
Casa Club TV	2003	MGM-Liberty Global		
Catalog TV		The Media Group		
CCTV-E&F	2004	China Central Television		
Celtic Vision	1995	Celtic Vision Productions Ltd.		
Centroamerica TV	2004	Centroamerica TV		
Chiller	2007	NBC Universal		
Church Channel, The	2002	Trinity Broadcasting Network		
Cine Latino	1994	MVS Television		
Cine Mexicano	2004	Cine Mexicano LLC		
Classic Arts Showcase	1994	Rigler-Deutsch Foundation		
CMT Pure Country (formerly VH1 Country)	1998	Viacom		
CNBC	1989	NBC Universal	0.16	0.16
CNBC World	1989	NBC Universal		
CNC Columbia	1999	CNC Columbia		
CNN (Cable News Network)	1980	Time Warner	0.39	0.58

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
CNN en Español	1997	Time Warner		
CNN Headline News	1982	Time Warner	0.19	0.29
CNN International	1995	Time Warner		
CoLours TV	2001	Black Star Communications		
Comedy Central	1991	Viacom	0.43	0.69
Cornerstone TeleVision	1979	Cornerstone TeleVision		
Country Music Television (CMT)	1983	Viacom	0.15	0.25
Court TV	1991	Time Warner	0.46	0.81
Crime & Investigation Network	2005	A&E		
CRN Networks	1983	CRN Digital Networks		
C-SPAN	1979	C-SPAN		
C-SPAN2	1986	C-SPAN		
C-SPAN3	1997	C-SPAN		
CSTV (College Sports Television)	2003	CBS Corp.		
Current TV (formerly Newsworld International)	1994	Gore-Hyatt		
Daystar Television Network	1998	Daystar Television Network		
De Pelicula	2003	Univision		
De Película Clásico	2003	Univision		
Deep Dish TV	1986	Deep Dish TV		
Discovery Channel	1985	Discovery Holding Co.	0.5	0.81
Discovery en Español	1998	Discovery Holding Co.		
Discovery HD Theatre	2002	Discovery Holding Co.		
Discovery Health Channel	1998	Discovery Holding Co.	0.09	0.15
Discovery Home Channel	1996	Discovery Holding Co.		
Discovery Kids Channel	1996	Discovery Holding Co.		
Discovery Kids en Español	2005	Discovery Holding Co.		
Discovery Times Channel	1996	Discovery Holding Co.	0.06	0.08
Discovery Travel and Living en Español (Viajar y Vivir)	2005	Discovery Holding Co.		
Disney Channel	1983	Disney	1.12	1.79
DIY (Do-It-Yourself Network)	1994	E.W. Scripps Co.		

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
DMX MUSIC	1991	Capstar Partners		
Docu TVE (formerly Grandes Documentales)	1996	Radio Television Española Internacional		
Documentary Channel, The	2006	Documentary Channel		
Dream Network, The	1994	Brohein Group LLC		
E! Entertainment Television	1990	Comcast	0.23	0.36
Ecuavisa Internacional	2004	Corporación Ecuatoriana de Televisión		
Employment Channel, The	2005	The Employment & Career Channel		
Encore	1991	Liberty Media	0.11	0.17
Encore Action	1994	Liberty Media		
Encore Drama	1994	Liberty Media		
Encore Love	1994	Liberty Media		
Encore Mystery	1994	Liberty Media		
Encore WAM!	1994	Liberty Media		
Encore Westerns	1994	Liberty Media		
ESPN	1979	Disney	0.65	1.39
ESPN Classic	1995	Disney	0.05	0.08
ESPN Deportes	2004	Disney		
ESPN2	1993	Disney	0.24	0.46
ESPNEWS	1996	Disney	0.05	0.06
ESPNU	2005	Disney		
EWTN en Espanol	1999	EWTN Global Catholic Network		
EWTN Global Catholic Network	1981	EWTN Global Catholic Network		
Faith Television Network	2002	Faith Television Network		
Family Net	2000	In Touch Ministries		
Familyland Television Network	1999	The Apostolate for Family Consecration		
Fine Living	2002	E.W. Scripps Co.		
FiT TV	1993	Discovery Holding Co.		
Food Network	1993	E.W. Scripps Co.	0.42	0.54
FOX Business Network	2007	Fox		
Fox College Sports	2001	Fox		

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
FOX Movie Channel	1994	Fox		
FOX News Channel	1996	Fox	0.62	1.03
Fox Reality	2005	Fox		
Fox Soccer Channel (formerly Fox Sports World)	1997	Fox		
Fox Sports en Español	1996	HM-Liberty-Fox		
FREE SPEECH TV (FSTV)	1995	Public Communicators Inc.		
FSN (Fox Sports Net)	1997	Fox		
FUEL TV	2003	Fox		
Funimation Channel	2006	Navarre Corp.		
fuse	1994	Cablevision	0.02	0.03
FX	1994	Fox	0.47	0.84
G4 VideogameTV (formerly G4 tech TV)	2002	Comcast	0.06	0.09
Galavisión	1979	Univision		
Game Show Network (GSN)	1994	Liberty Media	0.15	0.18
God TV	1995	God TV		
Golden Eagle Broadcasting	1996	Golden Eagle Broadcasting		
Golf Channel, The	1995	Comcast	0.06	0.1
GolTV	2003	Tenfiela		
Good Samaritan Network	2000	Good Samaritan Network		
Gospel Broadcasting Network (GBN)	2005	GBNTV		
Gospel Music Channel	2004	Gospel Music Channel		
Great American Country (GAC)	1995	E.W. Scripps Co.	0.04	0.06
Guardian Television Network	1976	Guardian Enterprise Group Inc.		
Hallmark Channel	1998	Crown Media Holdings Inc.	0.51	0.82
Hallmark Movie Channel	2004	Crown Media Holdings Inc.		
Havoc Television	2003	Havoc Television Inc.		
HDNet	2001	Cuban-Garvin		
HDNet Movies	2003	Cuban-Garvin		
Healthy Living Channel	2001	The Media Group		
History Channel	1995	A&E	0.46	0.75

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
History Channel en Español	2004	A&E		
History International (History Channel International)	1998	A&E	0.05	0.08
Hispanic Information & Telecommunications Network	1987	HITN		
Home & Garden Television (HGTV)	1994	E.W. Scripps Co.	0.45	0.8
Home Preview Channel		KB-MM-OCA		
Home Shopping Network (HSN)	1985	Liberty Media		
Horror Channel, The	2001	The Horror Channel		
HorseRacing TV	2002	Magna Entertainment Corp.		
HTV Musica (Hispanic TV)	1995	Time Warner		
i Shop TV	2001	The Media Group		
iDrive	2005	The Media Group		
ImaginAsian TV	2004	ImaginAsian Entertainment Inc.		
Independent Film Channel (IFC), The	1994	Cablevision		
Infinito	2002	Time Warner		
Inspiration Network , The (INSP)	1990	The Inspiration Networks Inc.		
Inspirational Life Television (i-Lifetv)	1998	The Inspiration Networks Inc.		
JCTV	2002	Trinity Broadcasting Network		
Jewelry Television	1993	Jewelry Television		
Kids Sports News Network	2005	Kids Sports News Network		
KTV - Kids and Teens Television		Dominion Video Satellite		
La Familia Cosmovision	2002	The Inspiration Networks Inc.		
Latele Novela Network	2005	Latele Novela Network		
Latinoamerica Television	2004	ACS Global TV		
LATV	2001	LATV Networks		
Learning Channel (TLC), The	1980	Discovery Holding Co.	0.35	0.63
Liberty Channel	2001	Liberty University		
Lifetime Movie Network	1998	Disney	0.21	0.3
Lifetime Real Women	2001	Disney		
Lifetime Television	1984	Disney	0.7	1.07
Link TV	1996	Link Media Inc.		

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
LOGO	2005	Viacom		
Mall TV (also called Outlet Mall TV)		The Media Group		
Men's Channel	2001	The Media Group		
Men's Outdoors and Recreation	2004	The Media Group		
MEXICANAL	2005	Cablecom-CC		
Mexico 22	2004	Televisión Metropolitana S.A. de C.V.		
MHD: Music High-Definition	2006	Viacom		
Military Channel	1998	Discovery Holding Co.	0.05	0.07
Military History Channel	2005	A&E		
Moody Broadcasting Network	1982	Moody Bible Institute of Chicago		
MoviePlex	1994	Liberty Media		
MSNBC	1996	NBC Universal	0.24	0.37
MTV	1981	Viacom	0.45	0.68
MTV 2	1996	Viacom	0.09	0.11
MTV Hits	2002	Viacom		
MTV Jams	2002	Viacom		
MTV Tr3s (formerly MTV Español)	1998	Viacom		
mun2	2001	NBC Universal	0.02	0.03
NASA Television	1991	U.S. Government		
National Geographic Channel	2001	Fox	0.15	0.25
National Jewish Television	1981	National Jewish Television		
NBA TV	1999	NBA		
Nexus Dominican Television Color Vision	2004	Nexus International Broadcasting		
NFL Network	2003	National Football League	0.06	0.11
Nick 2 (also called Nick Too)	1998	Viacom		
Nickelodeon/Nick at Nite	1979	Viacom	1.28	1.24
Nickelodeon GAS-Games & Sports For Kids	1999	Viacom		
Nicktoons	2002	Viacom	0.08	0.1
Noah's World International Television	2003	Noah's World International Television		
Noggin/The N	1999	Viacom	0.15	0.11

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
Once Mexico	2004	Instituto Politécnico Nacional		
Outdoor Channel, The	1993	Outdoor Channel Holdings Inc.		
OVATION - The Arts Network	1996	Arcadia, et al.		
Oxygen	2000	NBC Universal	0.14	0.21
PBS Kids Sprout	2005	Comcast		
Pentagon Channel	2004	U.S. Government		
PIN (Product Information Network)	1994	PIN (Product Information Network)		
Praise Television	1996	Christian Network Inc.		
Puma TV	1997	El Puma Television		
QVC	1986	Liberty Media		
Real Hip Hop Network, The	2006	The Real Hip Hop Network Broadcast Corporation		
ReelzChannel	2006	Hubbard Broadcasting Corp.		
ResearchChannel	2000	ResearchChannel		
Resort & Residence TV	2004	The Media Group		
RFD TV	2000	Rural Media Group Inc.		
Ritmoso Latino	2003	Univision		
S | Networks	2003	Sovereign New Media Group Ltd		
SafeTV		Total Life Community Educational Foundation		
Science Channel, The	1996	Discovery Holding Co.	0.07	0.11
Sci Fi Channel	1992	NBC Universal	0.37	0.76
Senior Citizens Network	2006	Senior Citizens Network		
Shalom TV	2006	Shalom TV, LLC		
Shop At Home Network	1986	E.W. Scripps Co.		
ShopNBC	1991	Valuevision Media		
Short TV	1999	ShortTV Inc.		
Sí TV	2004	Barshop Ventures, et al.		
Sleuth	2006	NBC Universal		
Smile of a Child	2005	Trinity Broadcasting Network		

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
SOAPnet	2000	Disney	0.13	0.25
¡Sorpresa!	2003	Firestone Communications		
Soundtrack Channel (STC)	2002	Soundtrack Channel LLC		
Southern Entertainment Television (SET)	2004	Southern Entertainment Television		
SET 2: Bluegrass Music Channel	2004	Southern Entertainment Television		
SET 3: Classic Black Gospel	2004	Southern Entertainment Television		
SPEED Channel	1996	Fox	0.1	0.17
Spike TV	1983	Viacom	0.45	0.81
SPIRIT Television	2004	Spirit Communications Inc.		
Sportsman Channel, The	2003	Sportsman Channel, The		
Stuff TV		The Media Group		
Style Network, The	1998	Comcast	0.07	0.09
Sundance Channel	1996	NBC Universal		
Sur Mex	2005	SUR Corp.		
Sur Peru	2005	SUR Corp.		
TBN - Trinity Broadcasting Network	1973	Trinity Broadcasting Network		
TBN Enlace USA	2002	Trinity Broadcasting Network		
TBS Superstation	1976	Time Warner	0.65	1.12
TCT Network	2006	TCT Ministries, Inc		
Telefe Internacional	1990	Television Federal S.A.		
Telefutura	2002	Univision		
Telehit	2003	Univision		
Television Española Internacional (TVE)	1989	Radio Television Española Internacional		
Tempo	2005	Tempo		
Tennis Channel, The	2003	Tennis Channel, The		
Three Angels Broadcasting Network (3ABN)	1986	Three Angels Broadcasting Network		
TNT (Turner Network Television)	1988	Time Warner	0.91	1.52
Toon Disney	1998	Disney	0.15	0.18
Toon Disney en Español (SAP)	1998	Disney		
Total Living Network	1998	Christian Communications of Chicagoland		

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
Travel Channel	1987	Cox Communications	0.14	0.31
Turner Classic Movies (TCM)	1994	Time Warner		
TV Chile	1999	Television Nacional de Chile		
TV Colombia	2003	LatinAmerican Television LLC		
TV Games Network - Interactive Horse Racing	1994	TV Guide		
TV Guide Channel	1988	TV Guide	0.1	0.19
TV Guide Interactive	1996	TV Guide		
TV Internacional	2003	TV Internacional		
TV Land	1996	Viacom	0.43	0.62
TV One	2004	Comcast-Radio1-DirecTV	0.07	0.1
TV Venezuela	2005	SUR Corp.		
TVU/TVU Live	2001	Spirit Communications Inc.		
TyC Sports International Channel	2003	Grupo Clarin - TyC		
Universal HD (formerly Bravo HD+)	2004	NBC Universal		
Univision	1996	Univision		
USA Network	1980	NBC Universal	0.87	1.76
Utilísima Televisión	1996	Fox		
Versus (formerly Outdoor Life Network - OLN)	1995	Comcast	0.06	0.14
VH1	1985	Viacom	0.31	0.54
VH1 Classic	1999	Viacom	0.02	0.03
VH1 Soul	1999	Viacom		
VHUno	1999	Viacom		
Video Rola	2001	MegaCable		
VOOM HD Networks	2005	Cablevision		
VTV (Varsity Television)	2003	Varsity Media Group Inc.		
WAPA America	2004	LIN TV Corp.		
Water Channel	2005	MCE Television Networks		
WE: Women's Entertainment	1997	Cablevision	0.09	0.14
Wealth TV	2004	Wealth TV		
Weather Channel, The	1982	Landmark Communications Inc.	0.21	0.21

Network	Launch Year	Attributable Owner*	Full Day Household Rating**	Prime Time Household Rating**
Weatherscan Local	1999	Landmark Communications Inc.		
WGN Superstation	1978	Tribune Company	0.16	0.23
Word Network, The	2000	The Word Network		
World Harvest Television	1992	LeSea Broadcasting		
Worship Network, The	1992	Christian Network Inc.		
Yesterday USA	1985	National Museum Of Communications Inc.		

Sources: FCC, Twelfth Annual Report (released March 3, 2006); SNL Kagan, Economics of Basic Cable Networks, 2007 Edition; National Cable and Telecommunications Association (NCTA), http://www.ncta.com; Broadcasting & Cable, "Guide to Hispanic TV Networks," (October 1, 2007) http://www.broadcastingcable.com; Warren Communications News, Television & Cable Factbook, 2007 Edition; Fox; NBC Universal; Viacom.

* Each network was "attributed" to a single owner. Most often, the attributed owner had a majority ownership in the network. In some cases, one owner was chosen from two owners with 50 percent shares. In such cases, ownership was attributed to the owner with the larger number of other networks. Networks for which no ownership information could be determined, and networks with no owner above 49 percent, were assumed to be owned independently.

** Ratings data from Nielsen Media Research cover September 25, 2006 through September 30, 2007.

Appendix 4: Economic Analysis of Product Bundling

Firms often choose to sell related products together in packages. Bundling is used to achieve cost savings or may arise from complementarities among the products involved. Bundling can also be a form of price discrimination, allowing a firm to take into account the dispersion of buyer valuations. This appendix provides an overview of the economic analysis of product bundling, nearly all of which is equally applicable to retail and wholesale packaging of video programming. I also attach earlier papers I and others submitted to the Commission describing this analysis as it applies in the retail context (see Attachments 1-4), along with a related paper my colleagues submitted to the Commission (see Attachment 5).

In the following discussion of bundling, the consumer or purchaser can be thought of as an individual with a willingness to pay for various products (e.g., cable networks), or can be thought of as an MVPD with a reservation price for each network based on its beliefs regarding how the addition of each network will affect its profits (through increased subscribers, increased subscriber fees and increased local advertising revenues). While the MVPD as purchaser is most immediately relevant for present purposes, the broad economic results also apply to retail bundling of networks to consumers.

1. Bundling is common and can result in cost savings

Bundling is an extremely common phenomenon in the American economy. Indeed, it is more the rule than the exception. Almost every product and service purchased by consumers is bundled by sellers from various components that could each, at least in principle, be sold or priced separately. Bundling presents no presumptive threat to consumer welfare. In fact, bundling generally promotes consumer welfare and increases efficiency by lowering the prices of goods and services. Exploitation of market power is not a common reason for bundling. As Professor Bruce Kobayashi notes:

> Bundling, or the selling of two separate goods in a package, is a ubiquitous phenomenon. Bundling is used by firms producing a wide variety of products and services, and is used to sell products at both the retail and wholesale level. Bundling is used by established firms and by new entrants, by dominant firms and by firms with many competitors, and by firms in both regulated and unregulated industries. The widespread and ubiquitous use of bundling by firms,

especially by those in highly competitive markets, suggests bundling yields widespread benefits for both firms and consumers.[26]

Whether, and how, to bundle components is an important aspect of the competitive strategies of individual firms. A seller decides what components to bundle, and which components to offer for sale individually or in other bundles, in light of its costs, its understanding of what will appeal to customers and the current and expected future marketing strategies of competing sellers. Pure bundling describes a marketing strategy in which two or more products are sold only together in fixed proportions when they could be (but are not) sold separately.[27] Everyday examples of pure bundles include a frozen dinner with meat and vegetables, a newspaper with all sections, a reference book with all chapters, and shoes with laces. Pure bundling is a commonplace and efficient method for delivering a wide range of products to consumers.

There are a variety of reasons why competing firms find it efficient to bundle potentially distinct products. Products may be bundled to reduce the transaction and information costs involved in purchasing, distributing, and selling goods and services. Bundling can enable firms to exploit economies of scale and scope in production and distribution. Bundling can enhance the attractiveness or convenience of the product to consumers and serve to reduce consumers' search costs by allowing firms to market integrated and compatible products. For example, shoes are sold with laces because it is more efficient (i.e., it has lower transaction costs) than selling the shoes and shoelaces separately. Otherwise, consumers would have to search for, and shoe stores would have to stock, matching laces.

Oftentimes bundling occurs because sellers can assemble parts into bundled units more cheaply and efficiently than can customers. Even though a self-assembled or tailored-made product might more closely match their own special tastes, customers frequently prefer a bundled product because it has a lower all-in price. For example, a television consists of many individual components and can be regarded as a bundle including a screen, a tuner, speakers, etc. Obviously, each of these components could be sold separately, but they come as a bundle because consumers desire assembled

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[26] Bruce H. Kobayashi, "Two Tales of Bundling: Implications for the Applications of Antitrust Law to Bundled Discounts," in *Antitrust Policy and Vertical Restraints*, R. W. Hahn, ed., AEI-Brookings Joint Center (2006), pp. 10-37, at 10.

[27] In "pure bundling" the products are only offered for sale together, whereas in "mixed bundling" the products are available individually as well as together.

products. These cost savings can also explain the use of standardized option packages for various products.

Newspapers are a familiar example of an efficient bundle. In order to buy the sports section of the *Washington Post,* one must buy the whole paper. Not everyone who purchases a daily newspaper reads each section, and each section could be sold separately. But it is efficient to sell the sections in a bundle for at least three reasons. First, there are economies in having all of the sections delivered at once, rather than having separate deliveries (and transactions) for each section. Second, subscribers receive some value by having the *option* to look at all of the sections, even if they usually do not read all of the sections. For example, subscribers who typically do not read the sports section may read it during special events, such as the Olympics. Subscribers can avoid the cost and inconvenience of having to order this section when they want it. Also, by scanning the entire paper subscribers may find an article of interest, which they would not see if the sections were sold separately. This option has value to subscribers. Third, by expanding the potential readership of the entire paper and by eliminating the need for duplicative advertisements, bundling also makes advertising more valuable and more efficient. Hence, for advertisers there is a synergistic effect from bundling. An increase in advertisers' willingness to pay for circulation, other things equal, tends to reduce the price the newspaper charges for subscriptions.

If bundling is driven solely by cost savings, an external regulatory constraint making bundling unlawful will reduce welfare by increasing costs. This is true whether or not sellers have market power.

2. Price discrimination models of bundling

Alongside cost savings reasons for bundling just discussed, the economic literature offers another explanation for product bundling that depends on the incentive for a seller to discriminate among consumers, some of whom place a higher value on a given product than others. Bundling can be viewed as an implicit way to charge a higher price to those consumers who most value some components of the bundle and a lower price to those who value those components least.[28] It can be much easier to predict purchasers' valuations for a bundle of goods than their valuations for the individual components when sold as separate goods. Research into the bundling of information

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[28] See, for example, George Stigler, "The Economics of Block Booking," in The Organization of Industry, Chicago: The University of Chicago Press (1968).

goods, i.e., goods for which the marginal costs of production and distribution are very low, finds that by taking advantage of this effect it is possible for a firm to achieve greater sales and greater economic efficiency. The low marginal cost for information goods not used by the buyer can create this efficiency effect for information goods where the same effect might not hold for other physical goods.[29]

Economists have studied the economics of bundling for many years and have constructed numerous abstract models of this decision-making process. The analyses indicate that bundling is a natural consequence of competitive as well as imperfect markets and that a given seller's profit-maximizing marketing strategy depends on many factors, including the details of production and demand conditions. Any given instance of bundling is at least as likely to be beneficial to consumers as a group as not. Generalizations are very difficult to come by, partly because virtually every instance of bundling, whatever its overall effects, improves the positions of some customers while worsening the positions of others. This makes policy analysis of bundling extremely complicated, and counsels against blanket condemnation of the practice.

Professor Timothy Brennan summarizes the point that in the economics literature there are results where bundling can either benefit consumers or harm consumers:

> The economics of bundling has a long and complex history, characterized mainly by a set of results that focus on price discrimination. As with the price discrimination literature generally, bundling has been regarded as a practice with highly ambiguous consequences. Analyses of bundling by monopolists are either indeterminate or depend heavily on virtually unobservable variables such as correlations of inframarginal valuations across bundled products.[30] [footnotes omitted]

To see how pure bundling can make some purchasers better off and some worse off relative to stand-alone pricing, consider the following example. Assume that there are two goods, Good1 and Good2, and two purchasers, Alpha and Beta. The following table shows the reservation prices of each of the purchasers (i.e., the maximum amount each purchaser is willing to pay) for each of the goods.

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[29] Yannis Bakos and Erik Brynjolfsson, "Bundling Information Goods: Pricing, Profits and Efficiency," *Management Science*, Vol. 45, No. 12 (Dec. 1999), pp. 1613-1630.

[30] Timothy J. Brennan, "Competition as an Entry Barrier? Consumer and Total Welfare Benefits of Bundling," AEI-Brookings Joint Center for Regulatory Studies, Working Paper, June 2005, p. 1.

	GOOD1	GOOD2
ALPHA	3	5
BETA	9	3

To keep the example simple, assume that the cost of producing each good is zero and that each purchaser will purchase either 0 or 1 unit of each good. If a firm sells each product separately, its profit maximizing prices are 9 for Good1 and 3 for Good2. At these prices the firm will sell a unit of Good1 to Beta and a unit of Good2 to both Alpha and Beta. The firm's profit will be 15. At these prices, purchaser Alpha has a surplus of 2, because Alpha is willing to spend 5 on Good2 but only has to pay 3. In contrast, purchaser Beta has a surplus of 0, because Beta has to pay its reservation price for each good.

Now assume the firm sells the two goods only as a bundle. In this situation the profit maximizing price for the bundle is 8, and each purchaser buys the bundle. The firm's profit will be 16. At this price for the bundle, purchaser Alpha has a surplus of 0, because Alpha has to pay the sum of its reservation prices for the bundle. In contrast, purchaser Beta has a surplus of 4, because Beta only has to pay 8 for the bundle but is willing to spend 12 on both products.

Selling the bundle is the more profitable alternative for the firm. Relative to selling the products separately, selling them as a bundle makes Alpha worse off, because Alpha's surplus falls from 2 to 0, but makes Beta better off, because Beta's surplus increases from 0 to 4. Selling the bundle also increases social welfare (defined as the sum of surplus plus profit) because social welfare equals 20 with the bundle but only 17 if the goods are sold separately.

This simple example shows that selling products as a bundle may increase the welfare of one purchaser while decreasing the welfare of another purchaser. Similarly, prohibiting the firm from selling the goods as a bundle will make one purchaser (Alpha) better off while making another purchaser (Beta) worse off. The example also illustrates that prohibiting the bundle can reduce the firm's profit, total consumer surplus, and social welfare.

It is possible to construct other examples that illustrate other possible outcomes. For instance, Appendix B in Attachment 5 presents an example illustrating that all consumers can be better off (or at least no worse off) with bundling than with unbundled

sales. Examples discussed in Attachment 4 illustrate that bundling may be necessary to ensure that a socially desirable product is provided at all or that socially desirable quality improvements in a product occur. Examples can be constructed to show that some purchasers who would not have purchased either of the products if sold separately will purchase the bundle, while at the same time some purchasers will fail to purchase the bundle even though they would have purchased one of the goods if offered stand-alone. The particular assumptions underlying any example or economic model determine whether bundling will increase or decrease total purchaser surplus. Similarly, depending on the way the example is structured, total surplus can go up or down.

These examples do not demonstrate that bundling *always* is desirable and improves welfare. Rather, they demonstrate simply that there should be no presumption of a welfare loss stemming from observed bundling, or a welfare improvement from mandatory unbundling. It is also possible to construct a hypothetical example in which mandatory unbundling improves welfare. However, without any empirical basis there is no reason for believing that hypothetical examples that show an improvement in welfare from unbundling are more representative of reality than others with opposite effects. A somewhat deeper point, from a policy perspective, is the great difficulty of telling one situation from another. Note, in the example above, how the welfare analysis turns on the assumption that the consumers' individual valuations for each product are known to the observer. In the real world this is very seldom true.

The same a priori indeterminacies arise in comparing mixed bundling to selling products only separately. A policy outlawing mixed bundling and requiring individual product sales will generally make some consumers better off and other consumers worse off. Such a policy can reduce total purchaser surplus and total surplus, as illustrated in Appendix C of Attachment 5.

A regulatory intervention restricting bundling may increase the welfare of some consumers who prefer specific individual services, but the increase comes at the expense of consumers who prefer the bundled services. A complete welfare analysis also requires knowing who or what type of individual is harmed or benefited, because marginal changes may not have an equal value to all consumers. For example, if it turned out that relatively well-off people would benefit from an intervention that required unbundling, while less well-off families would fare better under pure bundling, the intervention would harm the poorest Americans. Generally, the economic models

provide no basis to predict whether the consumers who may be better off have a special claim on society arising from conditions such as poverty or geographic isolation.

3. Antitrust and tying and bundling

In many cases where bundling is observed, the reason that separate goods are sold in a package is easily explained on efficiency grounds. This is certainly the presumptive explanation for bundling when it occurs in highly competitive markets. These efficiency-based explanations apply with equal force to the use of bundling by firms with market power. In addition, firms with market power can use bundling for other reasons—for example, as a price discrimination device or a way to internalize pricing externalities in the presence of complementary goods. However, in markets where firms can exercise monopoly power, bundling can have anticompetitive uses that may be scrutinized under the antitrust laws. Because bundling can also be an efficient practice when firms possess market power, any evaluation of bundling must simultaneously consider both the strategic and efficiency reasons for its use.

Tying

A tying arrangement occurs when the seller of a product, service or intangible (the "tying" product) conditions the sale on the buyer's purchasing a second product (the "tied" product).[31] Practices by firms with monopoly power in the tying good that involve such coercion can be unlawful. While some economists define pure bundling as tying, bundling has been distinguished from tying under the antitrust laws, and bundling and other forms of packaged sales have generally been found to lack a coercive element.

A tying arrangement is unlawful under the Sherman Act if (1) there exist two separate products, (2) the sale of one product is conditioned on the purchase of the other, (3) the seller has sufficient market power with respect to one product (the tying product) to enable it restrain competition appreciably in the other (the tied product,) and (4) the tie has an effect upon a substantial amount of commerce in the tied product.

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[31] *See Jefferson Parish Hospital District No. 2 v. Hyde*, 466 U.S. 2, 25 (1984).

A key criterion is that the seller must have considerable economic power in the tying product. This economic power is often demonstrated by showing that the seller has a dominant position in the tying product market or that the seller's product enjoys some significant advantage not shared by competitors in the tying market.

Exclusionary bundling

Recent economic analysis has also examined the use of bundling as an exclusionary or entry-deterring device.[32] That is, bundling could be used by a monopolist in one market to reduce competition in another market. Taken as a whole, the literature on exclusionary bundling provides the following results: (1) bundled discounts can exclude or deter the entry of equally efficient competitors, (2) this exclusion can occur at prices that are above cost, and (3) bundled discounts that exclude equally efficient competitors can increase or decrease consumer and total welfare. At the same time, the literature does not go beyond showing that such effects are possible; it does not provide any empirical evidence that such effects are likely under real-world conditions.[33]

The exclusionary bundling literature assumes that the firm engaging in the practice is a monopolist in one of the markets, and little attention has been paid to examining the firm's incentives if there is competition in that market. Moreover, these models typically ignore other reasons for bundling, such as cost efficiencies and pricing to heterogeneous purchasers. As a result, these models cannot gauge whether the potential for harm outweighs any demonstrable benefits.[34]

4. Application to cable wholesaling

As discussed in the text, programmers are not selling cable networks to MVPDs only as bundles, or forcing MVPDs to purchase bundles of networks. But even if this were happening, there is no reason to believe that prohibiting bundling would make MVPDs or consumers better off. As discussed, the overall welfare effects of bundling on purchasers are typically ambiguous, because generally some purchasers benefit

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[32] See, for example, Barry Nalebuff, "Bundling as an Entry Barrier," *Quarterly Journal of Economics*, 119, no. 1, pp. 159-87 (2004).

[33] Kobayashi, *op cit.*, at 21.

[34] *Ibid.* at 22.

from bundling and others are harmed. For purposes of this section, it is assumed that some bundling to MVPDs of the type that would be prohibited actually occurs.

There is no economic model clearly applicable to the business of wholesale provision of video programming that incorporates its special features (differentiated product competition, non-rivalrous services, two-sided markets, multiple temporal and geographic releases, etc.). Even aside from these special features, there are intrinsic economic characteristics of the business that make bundling likely to be efficient: complementarities in production and marketing (e.g., cross-promotion) and savings in transaction and bargaining costs. Similarly imponderable are the potential effects on diversity, however defined. The Commission is not likely through this proceeding or otherwise to uncover empirical evidence sufficient to avoid a very substantial risk that a regulatory intervention will reduce efficiency and welfare.

If bundling by programmers were prohibited, some MVPDs would be better off, some worse off. Some MVPDs will benefit from stand-alone purchases. They will acquire fewer networks and will pay less in total for programming from a particular supplier. The total effect on their programming purchases and pricing to consumers is indeterminate because these MVPDs could increase purchases from other programmers.

Other MVPDs, however, will be better off purchasing all the networks in the bundle at the bundled price. If the bundle were prohibited, these MVPDs would either (1) purchase the same group of networks as contained in the bundle but pay more than previously, or (2) not buy all the networks because the sum of the stand-alone prices is higher. In the latter case, the MVPDs are worse off because the value to them of the networks that are dropped exceeds the marginal "price" of those networks in the bundle but does not exceed the stand-alone price.

From a consumer's standpoint, prohibiting wholesale bundling will change the mix of networks purchased and the prices paid by MVPDs. This in turn will change the mix of networks offered by each MVPD to its subscribers, and the subscription price. This is likely to make some consumers better off and make others worse off. Many elements affecting the net result are empirical and difficult to observe. If, for example, an MVPD stops purchasing some networks, which networks would no longer be purchased and included in the MVPD's bundle/tier, how much less would the MVPD pay for the programming, how much would the MVPD's retail price for the bundle/tier be reduced, and how would various consumers value the networks no longer included in the MVPD's bundle/tier? If the MVPD were to add other networks in place of the networks that were dropped, what would be added and what would this do to the retail

price? An even more complete evaluation would have to take into account the appeal to various segments of consumers of any networks that are carried under bundling but would not be carried with stand alone pricing as well as those networks that would be carried by these MVPDs but for bundling.

To illustrate, assume initially that an MVPD offers a bundle of 10 networks to consumers for $20. If wholesale bundling is prohibited, the MVPD may no longer purchase one of the networks and simply offer a bundle of 9 networks for $18. In this case, those consumers that value the 10th network at more than $2 are net worse off; those that value the 10th network at less than $2 are net better off. Another possibility is that the MVPD drops one of the original 10 networks and replaces it with another network, still charging $20 for the bundle. In this case, those consumers that value the network that was dropped more (less) than they value the network that was added are worse (better) off. Clearly, there is a myriad of possibilities and no clear-cut impact on consumers as a whole, much less on any particular segment of society.

The Notice seeks comment on whether satellite cable programmers are tying carriage of "desirable" channels to carriage of other less desirable owned or affiliated channels, and whether such "take-it-or-leave-it" tying arrangements without any alternative offer to provide the programming on a stand-alone basis are prevalent in the industry. It is possible that what MVPD complainants may really object to is that the price offered for the "desirable" programming is not available without the "less desirable" programming. That is, an MVPD may be offered a network bundle at a price, and though the MVPD can remove an "undesired" network from the bundle, the price of the remaining bundle is not more attractive—it may even be higher than the price with the undesired network.

Program suppliers often are willing to offer a lower price or superior terms on some of their programming services if a cable operator is willing to ensure distribution of additional services. Indeed, even if an MVPD were otherwise inclined to purchase and carry only a single network from a particular programmer, the MVPD still might find it economically efficient to purchase a package of networks. This is because a programmer may be willing to pay an MVPD to ensure launch and carriage of a network. A payment from the programmer to the MVPD reflects the fact that the stand-alone competitive price for a network is negative, and this negative price for the "undesirable" network is "hidden" in the bundled price and causes the bundled price to be lower than the stand-alone price of the "desirable" network. All that is being observed is a price incentive offered by the programmer so the MVPD will take more programming.